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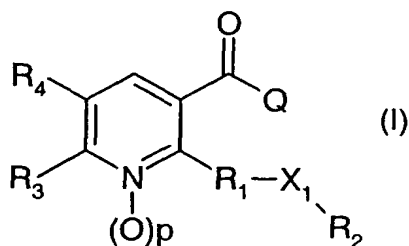
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(54) Title: SUBSTITUTED PYRIDINE HERBICIDES



(57) Abstract: Compounds of the formula (I) in which the substituents are as defined in claim 1 are suitable for use as herbicides.

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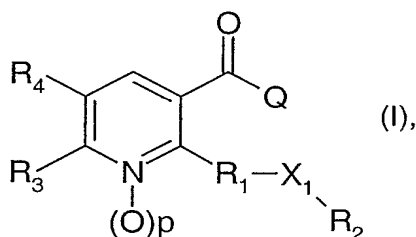
## SUBSTITUTED PYRIDINE HERBICIDES

The present invention relates to novel herbicidally active pyridine ketones, to processes for their preparation, to compositions which comprise these compounds, and to their use for controlling weeds, in particular in crops of useful plants, or for inhibiting plant growth.

Pyridine ketones having herbicidal action are described, for example, in WO 00/15615 and WO/0039094.

We have now found novel pyridine ketones having herbicidal and growth-inhibiting properties.

The present invention thus provides compounds of the formula I



in which

p is 0 or 1;

R<sub>1</sub> is a C<sub>1</sub>-C<sub>6</sub>alkylene, C<sub>3</sub>-C<sub>6</sub>alkenylene or C<sub>3</sub>-C<sub>6</sub>alkynylene chain which may be mono- or polysubstituted by halogen or R<sub>5</sub>, where the unsaturated bonds of the chain are not attached directly to the substituent X<sub>1</sub>;

X<sub>1</sub> is oxygen, -O(CO)-, -(CO)O-, -O(CO)O-, -N(R<sub>6</sub>)-O-, -O-NR<sub>51</sub>-, thio, sulfinyl, sulfonyl, -SO<sub>2</sub>NR<sub>7</sub>-, -NR<sub>52</sub>SO<sub>2</sub>- or -NR<sub>8</sub>-;

R<sub>2</sub> is a C<sub>1</sub>-C<sub>8</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>alkenyl or C<sub>3</sub>-C<sub>6</sub>alkynyl group which is mono- or polysubstituted by halogen, hydroxyl, amino, formyl, nitro, cyano, mercapto, carbamoyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>haloalkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>2</sub>-C<sub>6</sub>haloalkynyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, by halogen-substituted C<sub>3</sub>-C<sub>6</sub>cycloalkyl, or by C<sub>3</sub>-C<sub>6</sub>alkenyloxy, C<sub>3</sub>-C<sub>6</sub>alkynyloxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>3</sub>-C<sub>6</sub>haloalkenyloxy, cyano-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkyl-sulfinyl-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>6</sub>alkoxy,

C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>alkylcarbonyl, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>haloalkylthio, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfonyl, oxiranyl, which for its part may be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, or by (3-oxetanyl)oxy, which for its part may be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, or by benzylthio, benzylsulfinyl, benzylsulfonyl, C<sub>1</sub>-C<sub>6</sub>alkylamino, di(C<sub>1</sub>-C<sub>6</sub>alkyl)amino, R<sub>9</sub>S(O)<sub>2</sub>O, R<sub>10</sub>N(R<sub>11</sub>)SO<sub>2</sub>-, thiocyanato, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl;

where the phenyl- or benzyl-containing groups for their part may be substituted by one or more C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro groups, or

R<sub>2</sub> is phenyl which may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro; or

R<sub>2</sub> is C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy- or C<sub>1</sub>-C<sub>6</sub>alkyl-substituted C<sub>3</sub>-C<sub>6</sub>cycloalkyl, 3-oxetanyl or C<sub>1</sub>-C<sub>6</sub>alkyl-substituted 3-oxetanyl;

or, if Q is Q<sub>2</sub> or Q<sub>3</sub>, or is Q<sub>1</sub> in which R<sub>14</sub> and R<sub>22</sub> are a C<sub>2</sub>-C<sub>3</sub>alkylene chain, R<sub>2</sub> is additionally also a five- to ten-membered monocyclic or fused bicyclic ring system which may be aromatic, saturated or partially saturated and may contain 1 to 4 heteroatoms selected from the group consisting of nitrogen, oxygen and sulfur, where the ring system is attached directly or via a C<sub>1</sub>-C<sub>4</sub>alkylene, C<sub>2</sub>-C<sub>4</sub>alkenyl-C<sub>1</sub>-C<sub>4</sub>alkylene, C<sub>2</sub>-C<sub>4</sub>alkynyl-C<sub>1</sub>-C<sub>4</sub>alkylene, -N(R<sub>12</sub>)-C<sub>1</sub>-C<sub>4</sub>alkylene, -SO-C<sub>1</sub>-C<sub>4</sub>alkylene or -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub>alkylene group to the substituent X<sub>1</sub> and where each ring system may not contain more than two oxygen atoms and not more than two sulfur atoms and the ring system for its part may be mono-, di- or trisubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>haloalkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>2</sub>-C<sub>6</sub>haloalkynyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, hydroxyl, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>3</sub>-C<sub>6</sub>alkenyloxy, C<sub>3</sub>-C<sub>6</sub>alkynyloxy, mercapto, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>haloalkylthio, C<sub>3</sub>-C<sub>6</sub>alkenylthio, C<sub>3</sub>-C<sub>6</sub>haloalkenylthio, C<sub>3</sub>-C<sub>6</sub>alkynylthio, C<sub>2</sub>-C<sub>5</sub>alkoxyalkylthio, C<sub>3</sub>-C<sub>5</sub>acetylalkylthio, C<sub>3</sub>-C<sub>6</sub>alkoxycarbonylalkylthio, C<sub>2</sub>-C<sub>4</sub>cyanoalkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfonyl, aminosulfonyl, C<sub>1</sub>-C<sub>2</sub>alkylaminosulfonyl, di(C<sub>1</sub>-C<sub>2</sub>alkyl)aminosulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)amino, halogen, cyano, nitro, phenyl and benzylthio, where phenyl and benzylthio for their part may be substituted on the phenyl ring by C<sub>1</sub>-C<sub>3</sub>alkyl, C<sub>1</sub>-C<sub>3</sub>haloalkyl, C<sub>1</sub>-C<sub>3</sub>alkoxy, C<sub>1</sub>-C<sub>3</sub>haloalkoxy, halogen, cyano or nitro, and where the substituents on the nitrogen in the heterocyclic ring are different from halogen; or

R<sub>2</sub> is hydrogen or unsubstituted C<sub>1</sub>-C<sub>8</sub>alkyl if

a) R<sub>1</sub> is substituted by the group R<sub>5</sub>, or

b) Q is the group Q<sub>2</sub>, or

- 3 -

c) Q is the group Q<sub>3</sub> in which X<sub>1</sub> is -O(CO)-, -(CO)O-, -N(R<sub>6</sub>)-O-, -O-NR<sub>51</sub>-, -SO<sub>2</sub>NR<sub>7</sub>-, -NR<sub>52</sub>SO<sub>2</sub>- or -NR<sub>8</sub>-; or

d) Q is the group Q<sub>1</sub> in which X<sub>1</sub> is -N(R<sub>6</sub>)-O-, -O-NR<sub>51</sub>-, -SO<sub>2</sub>NR<sub>7</sub>-, -NR<sub>52</sub>SO<sub>2</sub>- or -NR<sub>8</sub>-, or

e) Q is the group Q<sub>1</sub> in which R<sub>14</sub> and R<sub>22</sub> in Q<sub>1</sub> are a C<sub>2</sub>-C<sub>3</sub>alkylene chain and X<sub>1</sub> is -O(CO)- or -(CO)O-,

R<sub>3</sub> is C<sub>1</sub>-C<sub>3</sub>haloalkyl;

R<sub>4</sub> is hydrogen, halogen, C<sub>1</sub>-C<sub>3</sub>alkyl, C<sub>1</sub>-C<sub>3</sub>haloalkyl, C<sub>1</sub>-C<sub>3</sub>alkoxy, C<sub>1</sub>-C<sub>3</sub>alkoxy-C<sub>1</sub>-C<sub>3</sub>alkyl or C<sub>1</sub>-C<sub>3</sub>alkoxy-C<sub>1</sub>-C<sub>3</sub>alkoxy;

R<sub>5</sub> is hydroxyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>3</sub>-C<sub>6</sub>cycloalkyloxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy,

C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy or C<sub>1</sub>-C<sub>2</sub>alkylsulfonyloxy;

R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>51</sub> and R<sub>52</sub> independently of one another are hydrogen,

C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>alkylcarbonyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkyl,

C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkyl substituted by C<sub>1</sub>-C<sub>6</sub>alkoxy, benzyl or phenyl, where phenyl and

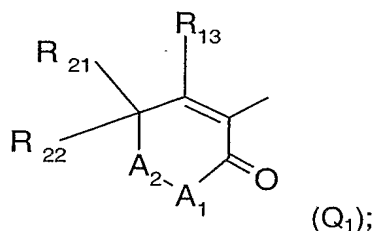
benzyl for their part may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl,

C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro; where R<sub>6</sub> and R<sub>9</sub> are not

simultaneously hydrogen and hydrogen, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl or C<sub>1</sub>-C<sub>6</sub>alkylcarbonyl,

respectively;

Q is Q<sub>1</sub>



in which

A<sub>1</sub> is C(R<sub>14</sub>R<sub>15</sub>), NR<sub>16</sub> or oxygen;

A<sub>2</sub> is C(R<sub>17</sub>R<sub>18</sub>), C(O), -C=N-O-R<sub>19</sub>, oxygen, thio, sulfinyl, sulfonyl, -NR<sub>20</sub> or ethylene; with the provisos that A<sub>1</sub> is different from oxygen if A<sub>2</sub> is oxygen, C(O), thio, sulfinyl, -C=N-O-R<sub>19</sub>,

NR<sub>20</sub> or C(R<sub>17</sub>R<sub>18</sub>), where R<sub>17</sub> and R<sub>18</sub> independently of one another are C<sub>1</sub>-C<sub>4</sub>alkoxy,

C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl; and A<sub>1</sub> is different from NR<sub>16</sub> if A<sub>2</sub> is thio,

sulfinyl or C(R<sub>17</sub>R<sub>18</sub>), where R<sub>17</sub> and R<sub>18</sub> independently of one another are C<sub>1</sub>-C<sub>4</sub>alkoxy,

C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl; R<sub>14</sub> and R<sub>22</sub> independently of one

another are hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl, C<sub>3</sub>-C<sub>4</sub>alkynyl, C<sub>1</sub>-C<sub>4</sub>alkylthio,

C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>4</sub>alkylsulfonyloxy, C<sub>1</sub>-C<sub>4</sub>alkoxy, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl or C<sub>1</sub>-C<sub>4</sub>alkylcarbonyl;

R<sub>15</sub> and R<sub>21</sub> independently of one another are hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl or C<sub>3</sub>-C<sub>4</sub>alkynyl;

R<sub>17</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>1</sub>-C<sub>4</sub>alkoxy, C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl or C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl;

R<sub>18</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl, C<sub>3</sub>-C<sub>4</sub>alkynyl, C<sub>1</sub>-C<sub>4</sub>alkoxy, C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl or C<sub>1</sub>-C<sub>4</sub>dialkoxyalkyl-C<sub>1</sub>-C<sub>4</sub>alkyl;

R<sub>20</sub> is C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl, C<sub>3</sub>-C<sub>4</sub>alkynyl, C<sub>1</sub>-C<sub>4</sub>alkylcarbonyl, C<sub>1</sub>-C<sub>4</sub>alkylcarbonyloxy, di(C<sub>1</sub>-C<sub>4</sub>alkyl)aminocarbonyl or benzyl, where the phenyl group may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro;

R<sub>19</sub> and R<sub>16</sub> independently of one another are hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl, C<sub>3</sub>-C<sub>4</sub>alkynyl, benzyl or phenyl, where phenyl and benzyl for their part may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro;

or R<sub>14</sub> and R<sub>22</sub> together form a C<sub>2</sub>-C<sub>3</sub>alkylene chain;

or R<sub>14</sub> and R<sub>15</sub> together and/or R<sub>17</sub> and R<sub>18</sub> together and/or R<sub>21</sub> and R<sub>22</sub> together form a C<sub>2</sub>-C<sub>4</sub>alkylene chain which may be interrupted by oxygen and/or carbonyl and/or sulfur, with the proviso that the oxygen and sulfur atoms are separated by at least one methylene group;

or R<sub>14</sub> and R<sub>18</sub> together form a C<sub>2</sub>-C<sub>4</sub>alkylene chain; or

R<sub>22</sub> and R<sub>18</sub> together form a C<sub>2</sub>-C<sub>4</sub>alkylene chain;

or R<sub>18</sub> together with R<sub>22</sub> or R<sub>14</sub> forms a direct bond;

or R<sub>16</sub> and R<sub>18</sub> together form a C<sub>2</sub>-C<sub>4</sub>alkylene chain;

R<sub>13</sub> is hydroxyl, O<sup>-</sup>M<sup>+</sup>, where M<sup>+</sup> is an alkali metal cation or ammonium cation, halogen, C<sub>1</sub>-C<sub>12</sub>alkylsulfonyloxy, amino, C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>12</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>12</sub>haloalkylthio, C<sub>1</sub>-C<sub>12</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>haloalkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>3</sub>-C<sub>12</sub>alkenylthio, C<sub>3</sub>-C<sub>12</sub>alkenylsulfinyl, C<sub>3</sub>-C<sub>12</sub>alkenylsulfonyl, C<sub>3</sub>-C<sub>12</sub>alkynylthio, C<sub>3</sub>-C<sub>12</sub>alkynylsulfinyl, C<sub>3</sub>-C<sub>12</sub>alkynylsulfonyl, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl, (C<sub>1</sub>-C<sub>4</sub>alkoxy)<sub>2</sub>P(O)O, C<sub>1</sub>-C<sub>4</sub>alkyl-(C<sub>1</sub>-C<sub>4</sub>alkoxy)P(O)O, H(C<sub>1</sub>-C<sub>4</sub>alkoxy)P(O)O, R<sub>23</sub>R<sub>24</sub>N, R<sub>25</sub>R<sub>26</sub>NNH, R<sub>27</sub>R<sub>28</sub>NC(O)O-, R<sub>29</sub>R<sub>30</sub>NC(O)NH-, C<sub>1</sub>-C<sub>18</sub>alkylcarbonyloxy, C<sub>2</sub>-C<sub>18</sub>alkenylcarbonyloxy, C<sub>2</sub>-C<sub>18</sub>alkynylcarbonyloxy, C<sub>3</sub>-C<sub>6</sub>cycloalkylcarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkoxycarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkylthio-

carbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkylthiocarbamoyl, where the alkyl, alkenyl and alkynyl groups may be substituted by halogen, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl or cyano;

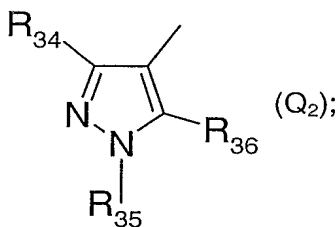
or R<sub>13</sub> is phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl, phenylsulfonylamino, phenylsulfonyloxy or benzyloxy, where the phenyl groups for their part may be substituted by one or more halogen, nitro, cyano, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>1</sub>-C<sub>4</sub>alkoxy or C<sub>1</sub>-C<sub>4</sub>haloalkoxy groups;

or R<sub>13</sub> is a group Het<sub>1</sub>-thio, Het<sub>2</sub>-sulfinyl, Het<sub>3</sub>-sulfonyl, Het<sub>4</sub>-(CO)O or Het<sub>5</sub>-N(R<sub>33</sub>); in which Het<sub>1</sub>, Het<sub>2</sub>, Het<sub>3</sub>, Het<sub>4</sub> and Het<sub>5</sub> independently of one another are a five- to ten-membered monocyclic or fused bicyclic ring system which may be aromatic or partially saturated and may contain 1 to 4 heteroatoms selected from the group consisting of nitrogen, oxygen and sulfur, and where each ring system may not contain more than 2 oxygen atoms and not more than 2 sulfur atoms, and where the ring system itself can be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)aminosulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)amino, halogen, cyano, nitro or phenyl, and where the substituents on the nitrogen in the heterocyclic ring are different from halogen;

R<sub>23</sub>, R<sub>24</sub>, R<sub>25</sub>, R<sub>26</sub>, R<sub>27</sub>, R<sub>28</sub>, R<sub>29</sub>, R<sub>30</sub> and R<sub>33</sub> independently of one another are hydrogen or C<sub>1</sub>-C<sub>6</sub>alkyl;

or R<sub>23</sub> and R<sub>24</sub> together or R<sub>25</sub> and R<sub>26</sub> together or R<sub>27</sub> and R<sub>28</sub> together or R<sub>29</sub> and R<sub>30</sub> together are pyrrolidino, piperidino, morpholino, thiomorpholino, which may be mono- or polysubstituted by methyl groups;

or Q is Q<sub>2</sub>



in which

R<sub>34</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>2</sub>-C<sub>4</sub>alkenyl, C<sub>2</sub>-C<sub>4</sub>alkynyl or benzyl, where the phenyl group may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro;

R<sub>35</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl, C<sub>3</sub>-C<sub>4</sub>alkynyl or benzyl, where the phenyl group may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro;

R<sub>36</sub> is hydroxyl, O<sup>-</sup>M<sup>+</sup>, where M<sup>+</sup> is an alkali metal cation or ammonium cation, halogen, C<sub>1</sub>-C<sub>12</sub>alkylsulfonyloxy, amino, C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>12</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>12</sub>haloalkylthio, C<sub>1</sub>-C<sub>12</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>haloalkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>3</sub>-C<sub>12</sub>alkenylthio, C<sub>3</sub>-C<sub>12</sub>alkenylsulfinyl, C<sub>3</sub>-C<sub>12</sub>alkenylsulfonyl, C<sub>3</sub>-C<sub>12</sub>alkynylthio, C<sub>3</sub>-C<sub>12</sub>alkynylsulfinyl, C<sub>3</sub>-C<sub>12</sub>alkynylsulfonyl, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl, (C<sub>1</sub>-C<sub>4</sub>alkoxy)<sub>2</sub>P(O)O, C<sub>1</sub>-C<sub>4</sub>alkyl-(C<sub>1</sub>-C<sub>4</sub>alkoxy)P(O)O, H(C<sub>1</sub>-C<sub>4</sub>alkoxy)P(O)O, R<sub>37</sub>R<sub>38</sub>N, R<sub>39</sub>R<sub>40</sub>NNH, R<sub>41</sub>R<sub>42</sub>NC(O)O-, R<sub>43</sub>R<sub>44</sub>NC(O)NH-, C<sub>1</sub>-C<sub>18</sub>alkylcarbonyloxy, C<sub>2</sub>-C<sub>18</sub>alkenylcarbonyloxy, C<sub>2</sub>-C<sub>18</sub>alkynylcarbonyloxy, C<sub>3</sub>-C<sub>6</sub>cycloalkylcarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkoxycarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkylthiocarbonyloxy or C<sub>1</sub>-C<sub>12</sub>alkylthiocarbamoyl, where the alkyl, alkenyl and alkynyl groups may be substituted by halogen, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl or cyano; or

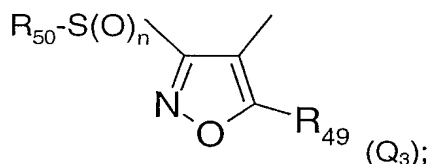
R<sub>36</sub> is phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl, phenylsulfonylamino, phenylsulfonyloxy or benzoyloxy, where the phenyl groups for their part may be mono- or polysubstituted by halogen, nitro, cyano, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>1</sub>-C<sub>4</sub>alkoxy, C<sub>1</sub>-C<sub>4</sub>haloalkoxy,

or R<sub>36</sub> is a group Het<sub>7</sub>-thio, Het<sub>8</sub>-sulfinyl, Het<sub>9</sub>-sulfonyl, Het<sub>10</sub>-(CO)O or Het<sub>11</sub>-N(R<sub>47</sub>); in which Het<sub>7</sub>, Het<sub>8</sub>, Het<sub>9</sub>, Het<sub>10</sub> and Het<sub>11</sub> independently of one another are a five- to ten-membered monocyclic or fused bicyclic ring system which may be aromatic or partially saturated and may contain 1 to 4 heteroatoms selected from the group consisting of nitrogen, oxygen and sulfur, and where each ring system may not contain more than 2 oxygen atoms and not more than 2 sulfur atoms, and where the ring system for its part may be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)aminosulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)amino, halogen, cyano, nitro or phenyl, and where the substituents on the nitrogen in the heterocyclic ring are different from halogen;

R<sub>37</sub>, R<sub>38</sub>, R<sub>39</sub>, R<sub>40</sub>, R<sub>41</sub>, R<sub>42</sub>, R<sub>43</sub>, R<sub>44</sub> and R<sub>47</sub> independently of one another are hydrogen or C<sub>1</sub>-C<sub>6</sub>alkyl; or

R<sub>37</sub> and R<sub>38</sub> together or R<sub>39</sub> and R<sub>40</sub> together or R<sub>41</sub> and R<sub>42</sub> together or R<sub>43</sub> and R<sub>44</sub> together are pyrrolidino, piperidino, morpholino, thiomorpholino, which may be mono- or polysubstituted by methyl groups;

or Q is Q<sub>3</sub>



in which

R<sub>49</sub> is C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl or halogen-substituted C<sub>3</sub>-C<sub>6</sub>cycloalkyl;

R<sub>50</sub> is C<sub>1</sub>-C<sub>3</sub>alkylene which may be substituted by halogen, hydroxyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, (3-oxetanyl)oxy, or by C<sub>1</sub>-C<sub>6</sub>alkyl-substituted (3-oxetanyl)oxy, or by benzylthio, benzylsulfinyl, benzylsulfonyl, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, where the phenyl- and benzyl-containing groups for their part may be substituted by one or more C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro groups;

or R<sub>50</sub> is phenyl, where the phenyl-containing group for its part may be substituted by one or more C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro,

or R<sub>50</sub> is C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy- or C<sub>1</sub>-C<sub>6</sub>alkyl-substituted C<sub>3</sub>-C<sub>6</sub>cycloalkyl, 3-oxetanyl or C<sub>1</sub>-C<sub>6</sub>alkyl-substituted 3-oxetanyl; and

n is 0, 1 or 2; and agronomically acceptable salts/N-oxides/isomers/enantiomers of these compounds.

The alkyl groups occurring in the definitions of the substituents can be straight-chain or branched and are, for example, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, pentyl, hexyl, heptyl, octyl, nonyl, decyl, undecyl and dodecyl and their branched isomers. Alkoxy, alkenyl and alkynyl radicals are derived from the alkyl radicals mentioned. The alkenyl and alkynyl groups can be mono- or polyunsaturated.

Halogen is generally fluorine, chlorine, bromine or iodine, preferably fluorine and chlorine. This also applies, correspondingly, to halogen in combination with other meanings, such as haloalkyl or halophenyl.

Haloalkyl groups preferably have a chain length of from 1 to 6 carbon atoms. Haloalkyl is, for example, fluoromethyl, difluoromethyl, trifluoromethyl, chloromethyl, dichloromethyl, trichloromethyl, 2,2,2-trifluoroethyl, 2-fluoroethyl, 2-chloroethyl, pentafluoroethyl, 1,1-difluoro-2,2,2-trichloroethyl, 2,2,3,3-tetrafluoroethyl and 2,2,2-trichloroethyl; preferably trichloromethyl, difluorochloromethyl, difluoromethyl, trifluoromethyl and dichlorofluoromethyl.

Suitable haloalkenyl groups are alkenyl groups which are mono- or polysubstituted by halogen, halogen being fluorine, chlorine, bromine and iodine and in particular fluorine and chlorine, for example 2,2-difluoro-1-methylvinyl, 3-fluoropropenyl, 3-chloropropenyl, 3-bromopropenyl, 2,3,3-trifluoropropenyl, 2,3,3-trichloropropenyl and 4,4,4-trifluorobut-2-en-1-yl. Among the  $C_3$ - $C_{20}$  alkenyl groups which are mono-, di- or trisubstituted by halogen, preference is given to those having a chain length of from 3 to 5 carbon atoms.

Suitable haloalkynyl groups are, for example, alkynyl groups which are mono- or polysubstituted by halogen, halogen being bromine, iodine and in particular fluorine and chlorine, for example 3-fluoropropynyl, 3-chloropropynyl, 3-bromopropynyl, 3,3,3-trifluoropropynyl and 4,4,4-trifluorobut-2-yn-1-yl. Among the alkynyl groups which are mono- or polysubstituted by halogen, preference is given to those having a chain length of from 3 to 5 carbon atoms.

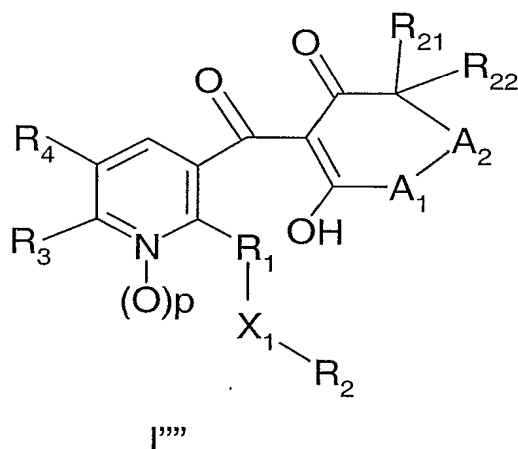
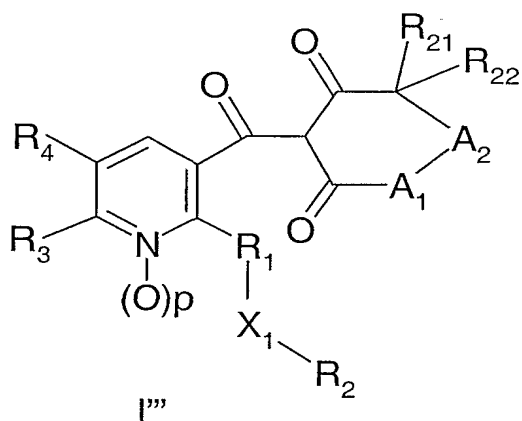
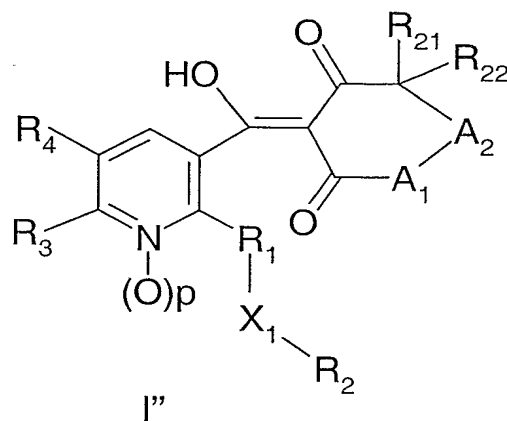
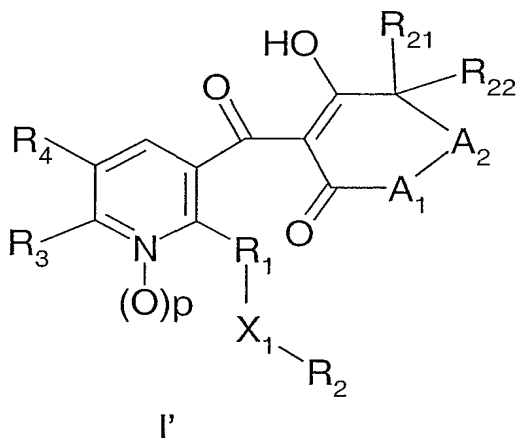
In the context of the present invention, the alkali metal cation  $M^+$  (for example in the definition of  $R_{13}$ ) is preferably the sodium cation or the potassium cation.

Alkoxy groups preferably have a chain length of from 1 to 6 carbon atoms. Alkoxy is, for example, methoxy, ethoxy, propoxy, i-propoxy, n-butoxy, isobutoxy, sec-butoxy and tert-butoxy and also the isomeric pentyloxy and hexyloxy radicals; preferably methoxy and ethoxy. Alkylcarbonyl is preferably acetyl or propionyl. Alkoxy carbonyl is, for example, methoxycarbonyl, ethoxycarbonyl, propoxycarbonyl, isopropoxycarbonyl, n-butoxycarbonyl, isobutoxycarbonyl, sec-butoxycarbonyl or tert-butoxycarbonyl; preferably methoxycarbonyl or ethoxycarbonyl. Haloalkoxy groups preferably have a chain length of from 1 to 8 carbon

atoms. Haloalkoxy is, for example, fluoromethoxy, difluoromethoxy, trifluoromethoxy, 2,2,2-trifluoroethoxy, 1,1,2,2-tetrafluoroethoxy, 2-fluoroethoxy, 2-chloroethoxy, 2,2-difluoroethoxy and 2,2,2-trichloroethoxy; preferably difluoromethoxy, 2-chloroethoxy and trifluoromethoxy. Alkylthio groups preferably have a chain length of from 1 to 8 carbon atoms. Alkylthio is, for example, methylthio, ethylthio, propylthio, isopropylthio, n-butylthio, isobutylthio, sec-butylthio or tert-butylthio, preferably methylthio and ethylthio. Alkylsulfinyl is, for example, methylsulfinyl, ethylsulfinyl, propylsulfinyl, isopropylsulfinyl, n-butylsulfinyl, isobutylsulfinyl, sec-butylsulfinyl, tert-butylsulfinyl; preferably methylsulfinyl and ethylsulfinyl.

Alkylsulfonyl is, for example, methylsulfonyl, ethylsulfonyl, propylsulfonyl, isopropylsulfonyl, n-butylsulfonyl, isobutylsulfonyl, sec-butylsulfonyl or tert-butylsulfonyl; preferably methylsulfonyl or ethylsulfonyl. Alkoxyalkoxy groups preferably have a chain length of from 1 to 8 carbon atoms. Examples of alkoxyalkoxy groups are: methoxymethoxy, methoxyethoxy, methoxypropoxy, ethoxymethoxy, ethoxyethoxy, propoxymethoxy or butoxybutoxy. Alkylamino is, for example, methylamino, ethylamino, n-propylamino, isopropylamino or the isomeric butylamines. Dialkylamino is, for example, dimethylamino, methylethylamino, diethylamino, n-propylmethylamino, dibutylamino and diisopropylamino. Preference is given to alkylamino groups having a chain length of from 1 to 4 carbon atoms. Alkoxyalkyl groups preferably have a chain length of 1 to 6 carbon atoms. Alkoxyalkyl is, for example, methoxymethyl, methoxyethyl, ethoxymethyl, ethoxyethyl, n-propoxymethyl, n-propoxyethyl, isopropoxymethyl or isopropoxyethyl. Alkylthioalkyl groups preferably have from 1 to 8 carbon atoms. Alkylthioalkyl is, for example, methylthiomethyl, methylthioethyl, ethylthiomethyl, ethylthioethyl, n-propylthiomethyl, n-propylthioethyl, isopropylthiomethyl, isopropylthioethyl, butylthiomethyl, butylthioethyl or butylthiobutyl. The cycloalkyl groups preferably have from 3 to 8 ring carbon atoms, for example cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl and cyclooctyl. Phenyl, also as part of a substituent such as phenoxy, benzyl, benzyloxy, benzoyl, phenylthio, phenylalkyl, phenoxyalkyl, may be substituted. In this case, the substituents can be in *ortho*, *meta* and/or *para* position. The preferred substituent positions are the *ortho* and *para* positions to the ring attachment point.

The compounds of the formula I may occur in different tautomeric forms, for example, if R<sub>13</sub> is hydroxyl, in the preferred formulae I' and I'''



The invention also embraces the salts which can be formed by compounds of the formula I, preferably with amines, alkali metal and alkaline earth metal bases or quarternary ammonium bases. Suitable salt formers are described, for example, in WO 98/41089.

The invention also embraces the salts which can be formed by the compounds of the formula I with amines, alkali metal and alkaline earth metal bases or quarternary ammonium bases. Among the alkali metal and alkaline earth metal hydroxides, the hydroxides of lithium, sodium, potassium, magnesium or calcium, in particular those of sodium or potassium, may be emphasized as salt formers.

Examples of amines suitable for ammonium salt formation are both ammonia and primary, secondary and tertiary C<sub>1</sub>-C<sub>18</sub>alkylamines, C<sub>1</sub>-C<sub>4</sub>hydroxyalkylamines and C<sub>2</sub>-C<sub>4</sub>alkoxyalkylamines, for example methylamine, ethylamine, n-propylamine, isopropylamine, the four isomeric butylamines, n-amylamine, isoamylamine, hexylamine, heptylamine, octylamine,

nonylamine, decylamine, pentadecylamine, hexadecylamine, heptadecylamine, octadecylamine, methylethylamine, methylisopropylamine, methylhexylamine, methylnonylamine, methylpentadecylamine, methyloctadecylamine, ethylbutylamine, ethylheptylamine, ethyloctylamine, hexylheptylamine, hexyloctylamine, dimethylamine, diethylamine, di-n-propylamine, diisopropylamine, di-n-butylamine, di-n-amylamine, diisoamylamine, dihexylamine, diheptylamine, dioctylamine, ethanolamine, n-propanolamine, isopropanolamine, N,N-diethanolamine, N-ethylpropanolamine, N-butylethanolamine, allylamine, n-butenyl-2-amine, n-pentenyl-2-amine, 2,3-dimethylbutenyl-2-amine, dibutenyl-2-amine, n-hexenyl-2-amine, propylenediamine, trimethylamine, triethylamine, tri-n-propylamine, triisopropylamine, tri-n-butylamine, triisobutylamine, tri-sec-butylamine, tri-n-amylamine, methoxyethylamine and ethoxyethylamine; heterocyclic amines, for example pyridine, quinoline, isoquinoline, morpholine, piperidine, pyrrolidine, indoline, quinuclidine and azepine; primary arylamines, for example anilines, methoxyanilines, ethoxyanilines, o,m,p-toluidines, phenylenediamines, benzidines, naphthylamines and o,m,p-chloroanilines; but in particular triethylamine, isopropylamine and diisopropylamine.

Preferred quarternary ammonium bases which are suitable for salt formation correspond, for example, to the formula  $[N(R_a R_b R_c R_d)]OH$ , in which  $R_a$ ,  $R_b$ ,  $R_c$  and  $R_d$  independently of one another are  $C_1$ - $C_4$ alkyl. Other suitable tetraalkylammonium bases with other anions can be obtained, for example, by anion exchange reactions.

Compounds of formula I, wherein p is 0, are preferred.

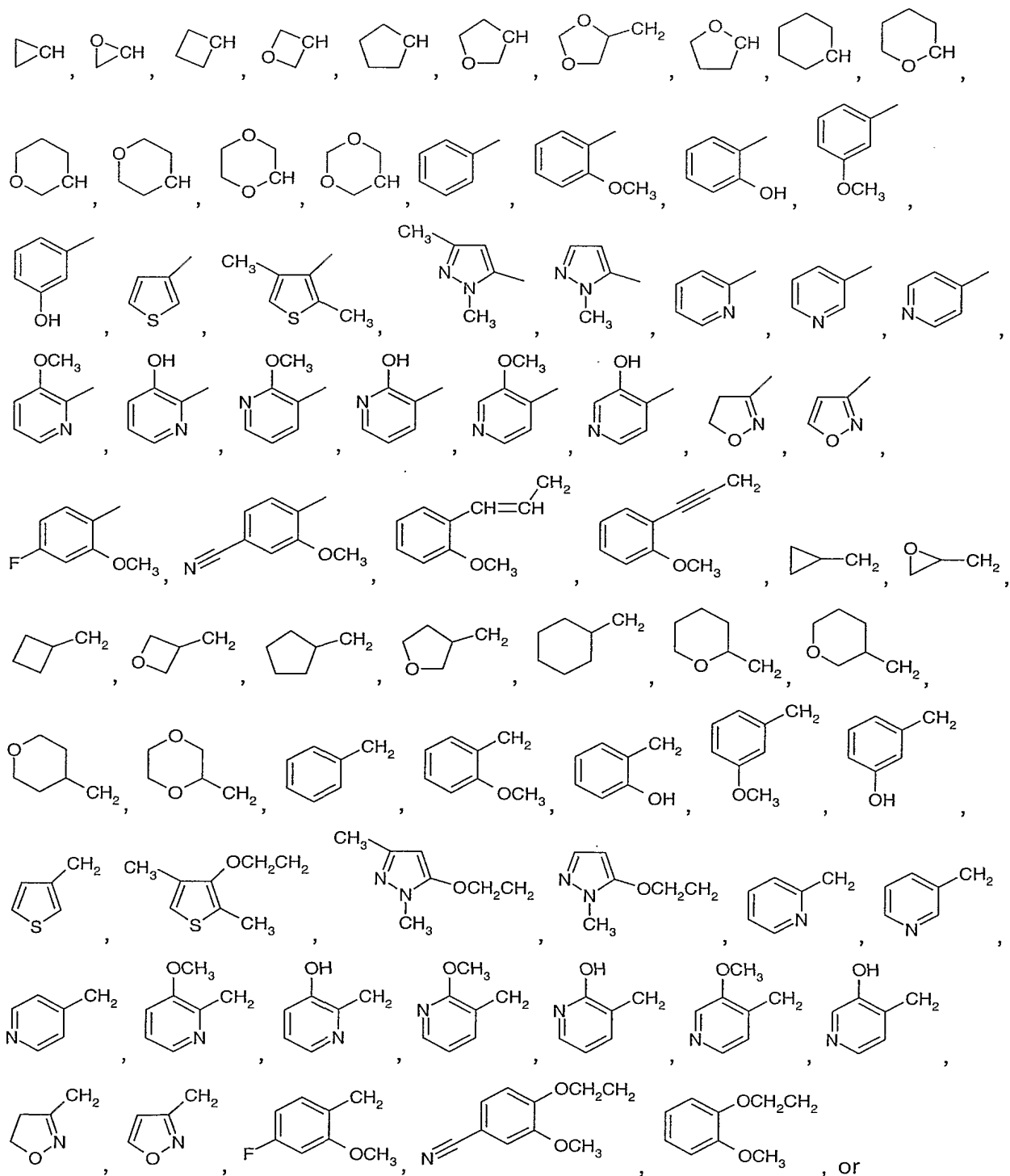
Preferred compounds of the formula I are those in which  $R_1$  is  $-CH_2-$ ,  $-CH_2CH_2-$ ,  $-CF_2$ ,  $-CH=CHCH_2-$ ,  $-CH(CH_3)-$  or  $-C\equiv CCH_2-$ , but particularly preferably  $-CH_2-$  where in each case the free valences on the left are attached to the pyridine ring.

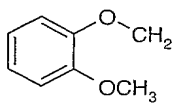
Preference is furthermore given to those compounds of the formula I, in which  $X_1$  is oxygen, sulfonyl or a group  $-NR_{52}SO_2-$ , in particular oxygen.


Of particular interest are compounds of the formula I, in which  $R_2$  is  $-CH_2OCH_3$ ,  $-CH_2OCH_2CH_3$ ,  $-CH_2CH_2OCH_3$ ,  $-CH_2CH_2SO_2CH_3$  or  $-CH_2CH_2OCH_2CH_2OCH_3$ , preferably  $-CH_2CH_2OCH_3$ , those compounds standing out in which  $X_1$  is oxygen and  $R_1$  is  $-CH_2-$ .

Among this group, preference is given to those compounds in which Q is Q<sub>1</sub> and R<sub>13</sub> is hydroxyl.

Emphasis is furthermore given to the compounds of the formula I in which R<sub>2</sub>





. If, in these preferred meanings of  $R_2$ , no free valency is indicated, as, for example, in the case of , the point of attachment is the carbon atom indicated by "CH".

In a further preferred group of compounds of the formula I,  $R_3$  is  $CF_3$ ,  $CF_2CF_3$ ,  $CF_2Cl$ ,  $CF_2H$  or  $CCl_3$ , particularly preferably  $CF_3$ , where  $R_4$  is preferably hydrogen or methyl, particularly preferably hydrogen.

$R_6$ ,  $R_7$ ,  $R_8$ ,  $R_9$ ,  $R_{10}$ ,  $R_{11}$ ,  $R_{12}$ ,  $R_{51}$  and  $R_{52}$  independently of one another are in particular hydrogen,  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkyl or  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkyl which is substituted by  $C_1$ - $C_6$ alkoxy, where in a preferred group of compounds of the formula I additionally  $Q$  is  $Q_2$  and  $R_1$  is methylene.

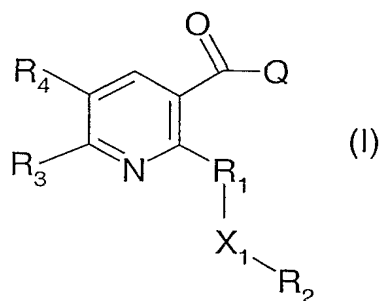
Very particularly preferably,  $Q$  is  $Q_1$  and  $R_{13}$  is hydroxyl or halogen, in particular hydroxyl. Among this group, emphasis is given to those compounds in which

- $A_1$  is  $C(R_{14}R_{15})$  or  $NR_{16}$  and  $A_2$  is  $C(R_{17}R_{18})$ ,  $C(O)$  or oxygen, or
- $A_1$  is  $C(R_{14}R_{15})$  and  $A_2$  is  $C(R_{17}R_{18})$  and  $R_{14}$  and  $R_{22}$  together form a  $C_2$ - $C_3$ alkylene chain, preferably an ethylene chain, where  $R_{15}$ ,  $R_{17}$ ,  $R_{18}$  and  $R_{21}$  are particularly preferably hydrogen; or
- $A_2$  is  $C(O)$  or  $C(R_{17}R_{18})$ ,  $A_1$  is  $C(R_{14}R_{15})$  and  $R_{14}$ ,  $R_{15}$ ,  $R_{17}$  and  $R_{18}$  independently of one another are hydrogen, methyl, ethyl, methoxycarbonyl or ethoxycarbonyl; or
- $R_{14}$  and  $R_{15}$  or  $R_{21}$  and  $R_{22}$  together form a  $C_2$ alkylene chain (cyclopropyl ring),  $A_2$  is  $CH_2$  and  $R_{21}$  and  $R_{22}$  or  $R_{14}$  and  $R_{15}$  independently of one another are hydrogen,  $C_1$ - $C_4$ alkyl, methoxycarbonyl or ethoxycarbonyl; or
- $A_2$  is  $C(R_{17}R_{18})$  and  $A_1$  is  $C(R_{14}R_{15})$  and  $R_{18}$  and  $R_{14}$  together form a  $C_2$ - $C_3$ alkylene chain.

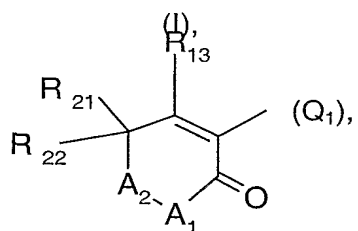
In a further outstanding group of compounds of the formula I,  $Q$  is  $Q_3$ ,  $R_{49}$  is cyclopropyl and  $R_{50}$ - $S(O)_n$  is methylthio, ethylthio, methylsulfinyl, ethylsulfinyl, methylsulfonyl or ethylsulfonyl.

The compounds of the formula I can be prepared by processes known per se, for example those described in WO 97/46530 or WO 00/15615 or WO/0039094, for example in the case of compounds of the formula I,

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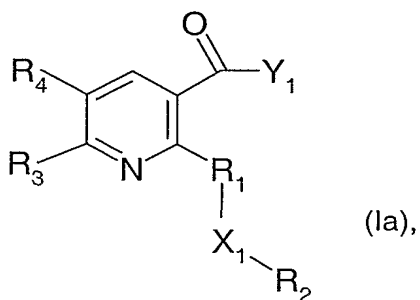


in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I and Q is a group



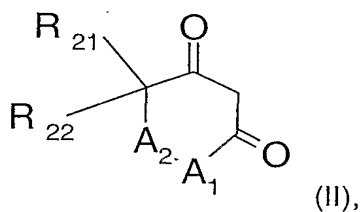
by, for example, either

a) reacting a compound of the formula Ia

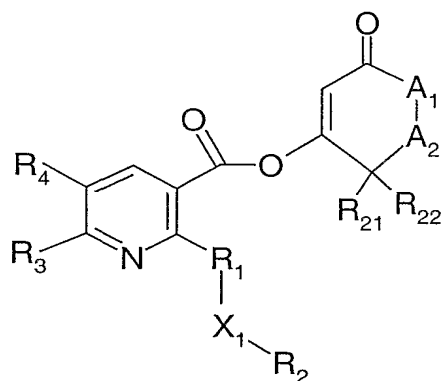


in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I and  $Y_1$  is a leaving group, for example halogen or cyano, in an inert organic solvent in the presence of a base with a compound of the formula II

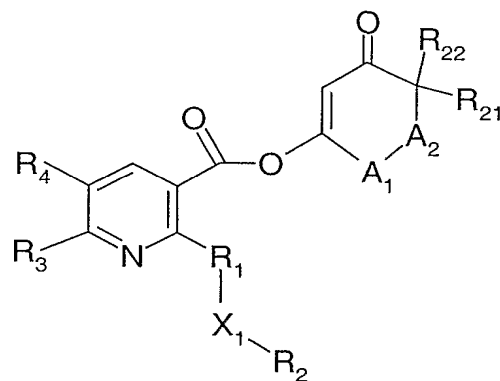
- 15 -



in which  $R_{22}$ ,  $R_{21}$ ,  $A_2$  and  $A_1$  are as defined under formula I, to give the compounds of the formulae IIIa and IIIb

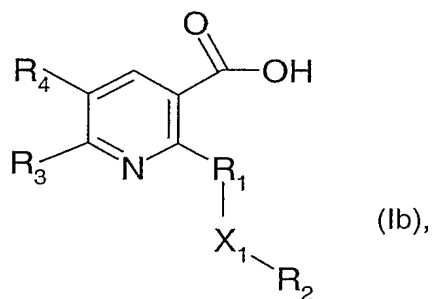


IIIa



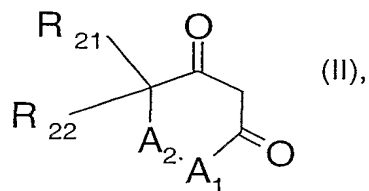
IIIb

and then isomerizing these for example in the presence of a base and a catalytic amount of dimethylaminopyridine (DMAP) or a source of cyanide, for example acetone cyanohydrin; or  
b) reacting a compound of the formula Ib

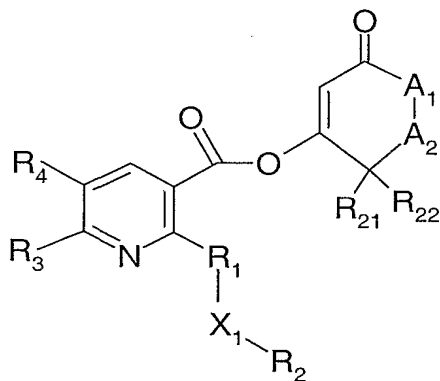


in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I, with a compound of the formula II

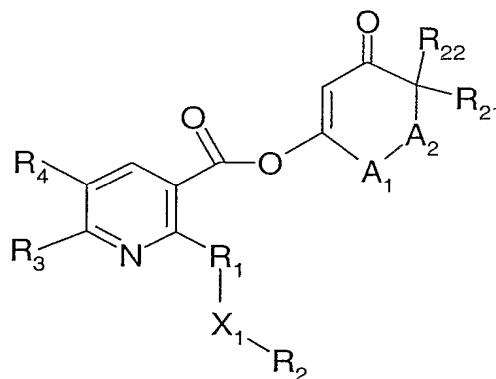
- 16 -



in which  $R_{22}$ ,  $R_{21}$ ,  $A_1$  and  $A_2$  are as defined under formula I, in an inert organic solvent in the presence of a base and a coupling agent to give the compounds of the formula IIIa or IIIb



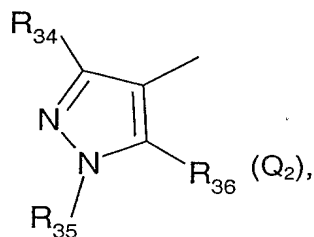
IIIa



IIIb

and then isomerizing these, for example as described under route a).

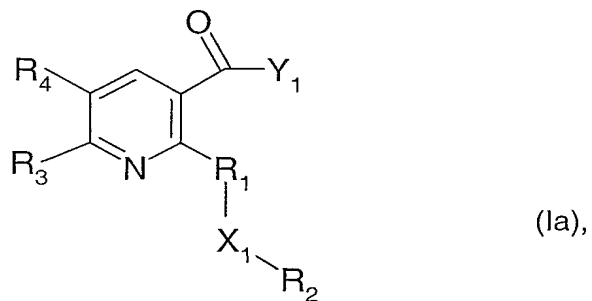
Compounds of the formula I, in which Q is a group



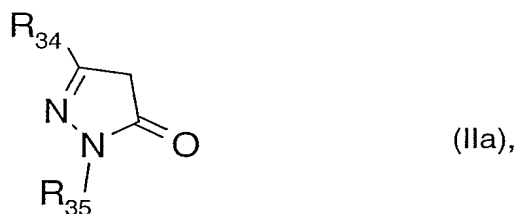
are prepared similarly to a known process (for example WO 97/46530), wherein either

a) a compound of the formula Ia

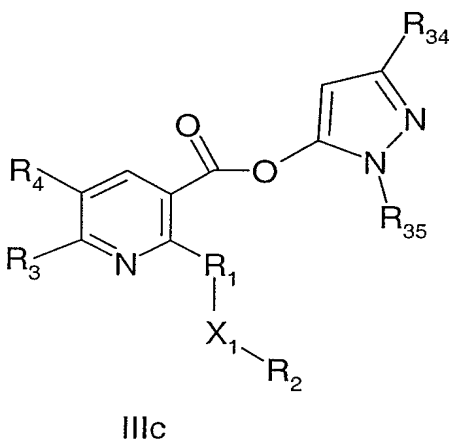
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in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I and  $Y_1$  is a leaving group, for example halogen or cyano, is reacted with a compound of the formula IIa



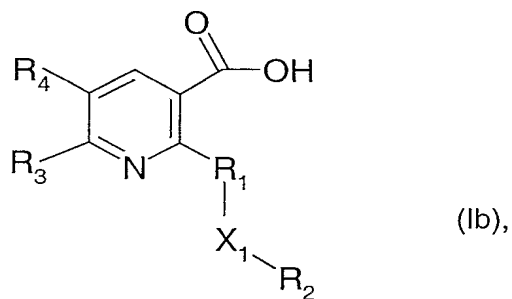
in which  $R_{34}$  and  $R_{35}$  are as defined, in an inert organic solvent in the presence of a base to give the compound of the formula IIIc



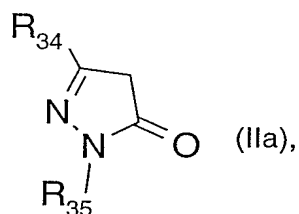
in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_{34}$ ,  $R_{35}$  and  $X_1$  are as defined under formula I, and this compound is then isomerized, for example in the presence of a base and a catalytic amount of a source of cyanide; or

b) a compound of the formula Ib

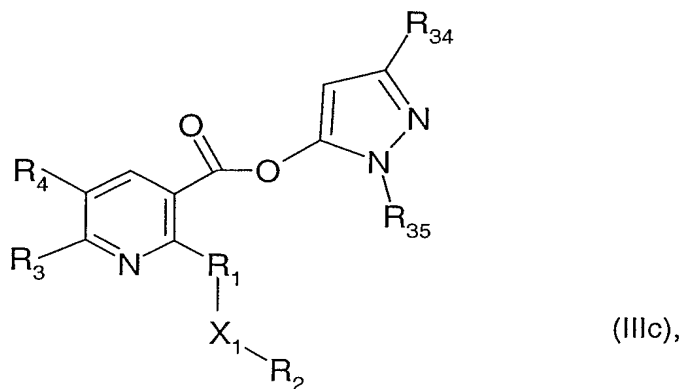
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in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I, is reacted with a compound of the formula IIa

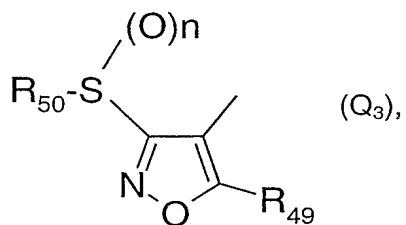


in which  $R_{34}$  and  $R_{35}$  are as defined above, in an inert organic solvent in the presence of a base and a coupling agent to give the compound of the formula IIIc



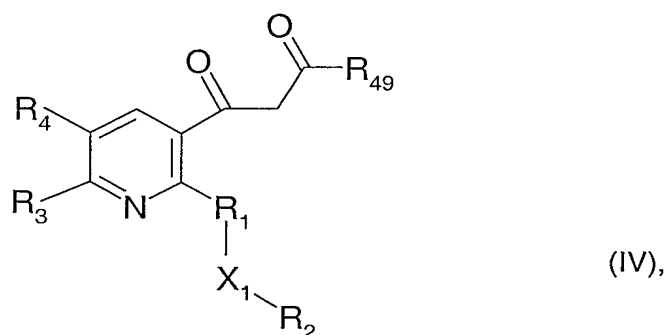
and this compound is then isomerized as described under route a).

The compounds of the formula I, in which Q is a group



in which  $n$  is 0 and  $R_{50}$  and  $R_{49}$  are as defined above, are prepared similarly to known processes (for example those described in WO 00/15615, WO/0039094 or WO 97/43270), wherein either

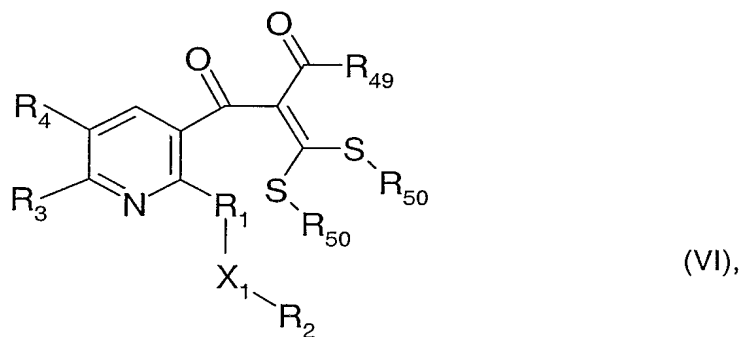
a) a compound of the formula IV



in which  $X_1$ ,  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_{49}$  are as defined above, is converted in the presence of a base, carbon disulfide and an alkylating agent of the formula V

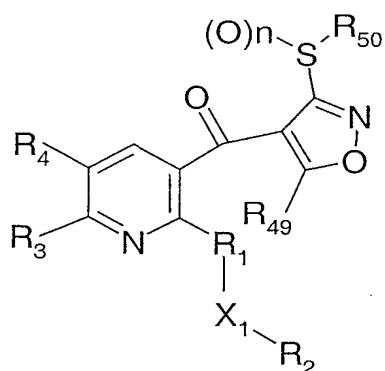


in which  $R_{50}$  is as defined under formula I, and  $Y_2$  is a leaving group, for example halogen or sulfonate, into the compound of the formula VI



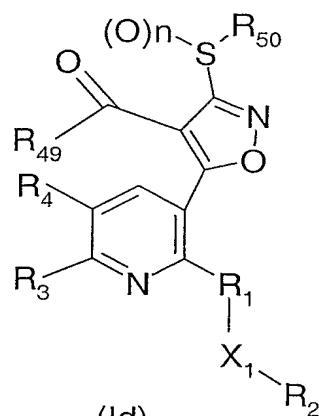
in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_{50}$ ,  $X_1$  and  $R_{49}$  are as defined above, and this compound is then cyclized with hydroxylamine hydrochloride, if appropriate in a solvent, in the presence of a base, for example sodium acetate, to give the isomeric compounds of the formulae Ic and Id

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(Ic)

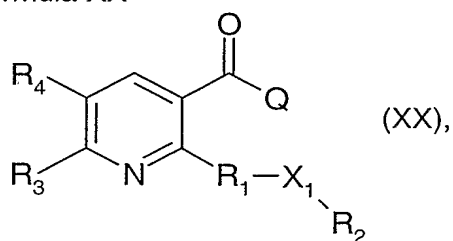
and



(Id)

and these compounds are then oxidized with an oxidizing agent, for example with peracids, for example meta-chloroperoxybenzoic acid (m-CPBA) or peracetic acid, to give the corresponding sulfoxides ( $n = 1$ ) and sulfones ( $n = 2$ ) of the formulae Ie and If, respectively. Isomers of the formulae Ic and Id (in which  $n = 0$ ) or Ie and If (in which  $n = 1$  or  $2$ ) can be separated and purified by column chromatography, using a suitable mobile phase.

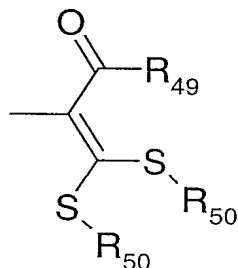
The intermediates of the formulae Ia, Ib, IV and VI are novel and were developed specifically for the preparation of the compounds of the formula I. Accordingly, they also form part of the subject-matter of the present invention. Together, the novel intermediates of the formulae Ia, Ib, IV and VI correspond to formula XX



(XX),

in which

Q is hydroxyl, halogen, cyano or C<sub>1</sub>-C<sub>6</sub>alkoxy, or is a group of the formula



or -CH<sub>2</sub>(CO)R<sub>49</sub>; and

R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>49</sub>, R<sub>50</sub>, X<sub>1</sub> and p are as defined under formula I and R<sub>2</sub> is a C<sub>1</sub>-C<sub>8</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>alkenyl or C<sub>3</sub>-C<sub>6</sub>alkynyl group which is mono- or polysubstituted by halogen, hydroxyl, amino, formyl, nitro, cyano, mercapto, carbamoyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>haloalkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>2</sub>-C<sub>6</sub>haloalkynyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, by halogen-substituted C<sub>3</sub>-C<sub>6</sub>cycloalkyl, or by C<sub>3</sub>-C<sub>6</sub>alkenyloxy, C<sub>3</sub>-C<sub>6</sub>alkynyloxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>3</sub>-C<sub>6</sub>haloalkenyloxy, cyano-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>alkylcarbonyl, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>haloalkylthio, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>-haloalkylsulfonyl, oxiranyl, which for its part may be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, or by (3-oxetanyl)oxy, which for its part may be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, or by benzylthio, benzylsulfinyl, benzylsulfonyl, C<sub>1</sub>-C<sub>6</sub>alkylamino, di(C<sub>1</sub>-C<sub>6</sub>alkyl)amino, R<sub>9</sub>S(O)<sub>2</sub>O, R<sub>10</sub>N(R<sub>11</sub>)SO<sub>2</sub>-, thiocyanato, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl; where the phenyl- or benzyl-containing groups for their part may be substituted by one or more C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro groups, or

R<sub>2</sub> is phenyl which may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro; or

R<sub>2</sub> is C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy- or C<sub>1</sub>-C<sub>6</sub>alkyl-substituted C<sub>3</sub>-C<sub>6</sub>cycloalkyl, 3-oxetanyl or C<sub>1</sub>-C<sub>6</sub>alkyl-substituted 3-oxetanyl;

or

if X<sub>1</sub> is -N(R<sub>6</sub>)-O-, -O-NR<sub>51</sub>, SO<sub>2</sub>NR<sub>7</sub>- or -NR<sub>52</sub>SO<sub>2</sub>- and R<sub>6</sub>, R<sub>7</sub>, R<sub>51</sub> and R<sub>52</sub> are as defined under formula I,

R<sub>2</sub> may additionally be hydrogen, unsubstituted C<sub>1</sub>-C<sub>6</sub>alkyl, or

a five- to ten-membered monocyclic or fused bicyclic ring system which may be aromatic, saturated or partially saturated and may contain 1 to 4 heteroatoms selected from the group consisting of nitrogen, oxygen and sulfur, where the ring system is attached directly or via a C<sub>1</sub>-C<sub>4</sub>alkylene, C<sub>2</sub>-C<sub>4</sub>alkenyl-C<sub>1</sub>-C<sub>4</sub>alkylene, C<sub>2</sub>-C<sub>4</sub>alkynyl-C<sub>1</sub>-C<sub>4</sub>alkylene, -N(R<sub>12</sub>)-

C<sub>1</sub>-C<sub>4</sub>alkylene, -SO-C<sub>1</sub>-C<sub>4</sub>alkylene or -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub>alkylene group to the substituent X<sub>1</sub>,

and where each ring system may not contain more than 2 oxygen atoms and not more than two sulfur atoms, and where the ring system for its part may be mono-, di- or trisubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>haloalkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl,

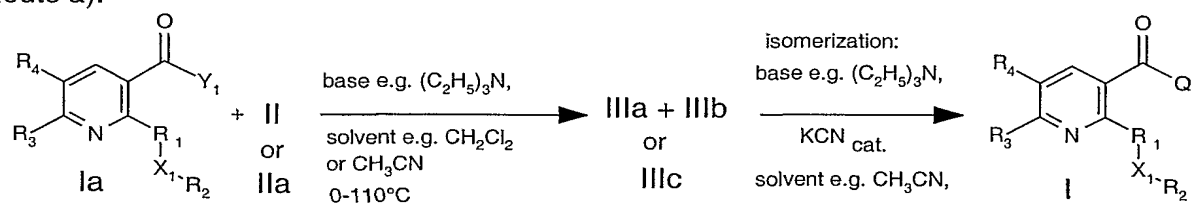
C<sub>2</sub>-C<sub>6</sub>haloalkynyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, hydroxyl, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>3</sub>-C<sub>6</sub>alkenyloxy, C<sub>3</sub>-C<sub>6</sub>alkynyloxy, mercapto, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>-haloalkylthio, C<sub>3</sub>-C<sub>6</sub>alkenylthio, C<sub>3</sub>-C<sub>6</sub>haloalkenylthio,

C<sub>3</sub>-C<sub>6</sub>alkynylthio, C<sub>2</sub>-C<sub>5</sub>alkoxyalkylthio, C<sub>3</sub>-C<sub>5</sub>acetylalkylthio, C<sub>3</sub>-C<sub>6</sub>alkoxycarbonylalkylthio, C<sub>2</sub>-C<sub>4</sub>cyanoalkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfonyl, aminosulfonyl, C<sub>1</sub>-C<sub>2</sub>alkylaminosulfonyl, di(C<sub>1</sub>-C<sub>2</sub>alkyl)aminosulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)amino, halogen, cyano, nitro, phenyl and benzylthio, where phenyl and benzylthio for their part may be substituted on the phenyl ring by C<sub>1</sub>-C<sub>3</sub>alkyl, C<sub>1</sub>-C<sub>3</sub>haloalkyl, C<sub>1</sub>-C<sub>3</sub>alkoxy, C<sub>1</sub>-C<sub>3</sub>haloalkoxy, halogen, cyano or nitro, and where the substituents on the nitrogen in the heterocyclic ring are different from halogen.

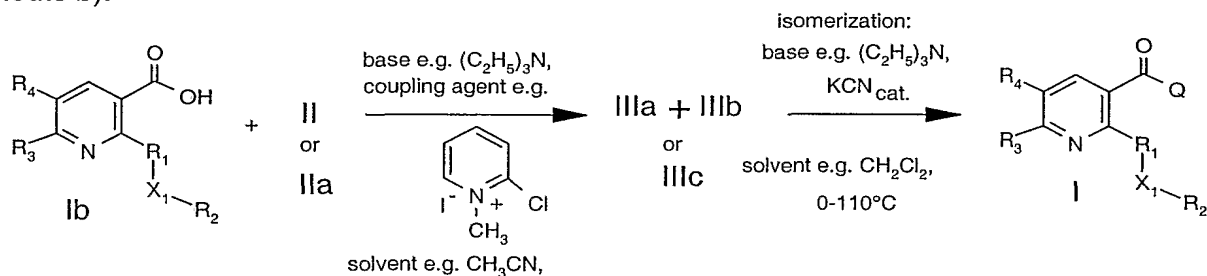
The preparation of the compounds of the formula I is illustrated in more detail in reaction schemes 1 and 2 below.

### Reaction scheme 1

Route a):

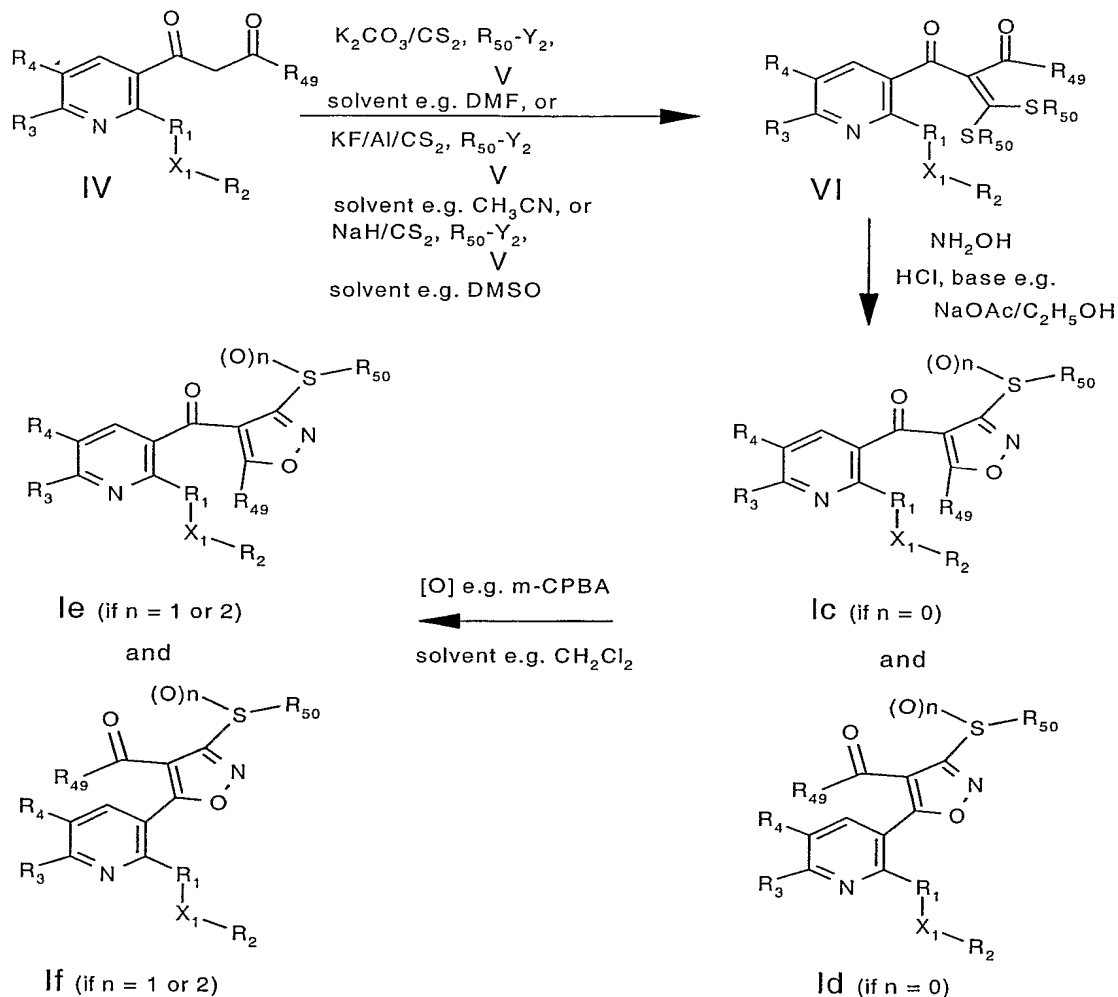


Route b):



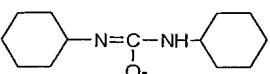
Reaction scheme 1 is preferably used to prepare the compounds of the formula I having the group Q<sub>1</sub>, in which R<sub>13</sub> is hydroxyl, and the compounds of the formula I having the group Q<sub>2</sub>, in which R<sub>36</sub> is hydroxyl.

## Reaction scheme 2



Compounds of the formula I, in which p is 1, i.e. the corresponding N-oxides of the formula I, can be prepared by reacting a compound of the formula I, in which p is 0, with a suitable oxidizing agent, for example the  $\text{H}_2\text{O}_2$ /urea adduct in the presence of an acid anhydride, e.g. trifluoroacetic anhydride. Such oxidations are known from the literature, for example from *J. Med. Chem.*, 32 (12), 2561-73, **1989** or WO 00/15615.

According to reaction scheme 1, route a), the carboxylic acid derivatives of the formula Ia in which  $\text{Y}_1$  is a leaving group such as halogen, for example iodine, bromine, and in particular chlorine, N-oxypthalimide or N,O-dimethylhydroxylamino or part of an activated ester, for

example  (formed from dicyclohexylcarbodiimide (DCC) and the

corresponding carboxylic acid) or  $\text{C}_2\text{H}_5\text{N}=\underset{\text{O}-}{\underset{|}{\text{C}}}-\text{NH}(\text{CH}_2)_3\text{N}(\text{CH}_3)_2$  (formed from N-ethyl N'-(3-

dimethylaminopropyl)carbodiimide (EDC) and the corresponding carboxylic acid) are used as starting materials for preparing the compounds of the formula I in which Q denotes the groups  $\text{Q}_1$  and  $\text{Q}_2$  and  $\text{R}_{13}$  and  $\text{R}_{36}$  are hydroxyl. The starting materials are reacted in an inert organic solvent such as a halogenated hydrocarbon, for example dichloromethane, a nitrile, for example acetonitrile, or an aromatic hydrocarbon, for example toluene, and in the presence of a base such as an alkylamine, for example triethylamine, an aromatic amine, for example pyridine or 4-dimethylaminopyridine (DMAP) with the dione derivatives of the formula II or pyrazoles of the formula IIa, to give the isomeric enol ethers of the formula IIIa, IIIb or IIIc. This esterification can be carried out at temperatures of from 0°C to 110°C.

The isomerization of the ester derivatives of the formulae IIIa, IIIb and IIIc to derivatives of the formula I (in which  $\text{R}_{13}$  and  $\text{R}_{36}$  are hydroxyl) can be carried out, for example, similarly to EP-A-0 353 187, EP-A-0 316 491 or WO 97/46530 in the presence of a base such as an alkylamine, for example triethylamine, a carbonate, for example potassium carbonate, and a catalytic amount of DMAP or a source of cyanide, such as acetone cyanohydrin or potassium cyanide. In particular if a cyanide compound of the formula Ia ( $\text{Y}_1 = \text{cyano}$ ) is used, or in the presence of a catalytic amount of acetone cyanohydrin or potassium cyanide, the two reaction steps can be carried out *in situ* without isolating the intermediates III.

According to reaction scheme 1, route b), the desired derivatives of the formula I (in which  $\text{R}_{13}$  and  $\text{R}_{36}$  are hydroxyl) can be obtained, for example, similarly to E. Haslem, *Tetrahedron*, 2409-2433, 36, **1980**, by esterifying the carboxylic acids of the formula Ib with the dione derivatives of the formula II or pyrazoles of the formula IIa in an inert solvent such as a halogenated hydrocarbon, for example dichloromethane, a nitrile, for example acetonitrile, or an aromatic hydrocarbon, for example toluene, in the presence of a base such as an alkylamine, for example triethylamine, and a coupling agent such as 2-chloro-1-methylpyridinium iodide. Depending on the solvent used, this esterification is carried out at temperatures of from 0°C to 110°C, giving initially, as described under route a), the isomeric ester of the formula IIIa, IIIb or IIIc, which can be isomerized as described under route a), for example in the presence of a base and a catalytic amount of DMAP, or a source of cyanide, for example acetone cyanohydrin, to give the desired derivative of the formula I ( $\text{R}_{13}$  and  $\text{R}_{36} = \text{hydroxyl}$ ). The activated carboxylic acid derivatives of the formula Ia in reaction scheme 1 (route a), in which  $\text{Y}_1$  is a leaving group such as halogen, for example bromine, iodine or, in particular, chlorine, can be prepared by known standard processes, for example

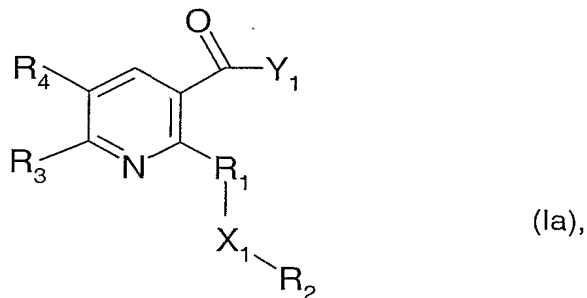
those described in C. Ferri "Reaktionen der organischen Synthese" [Reactions of organic synthesis], Georg Thieme Verlag, Stuttgart, 1978, page 460 ff. Such reactions are generally known and described in the literature in different variations with respect to the leaving group  $Y_1$ .

The preparation of the compounds of the formula I, in which Q denotes the group  $Q_3$ , can be carried out according to reaction scheme 2 by reacting the  $\beta$ -diketone derivative of the formula IV for example similarly to *Synthesis* **1991**, 301; *ibid.* **1988**, 793; or *Tetrahedron* **32**, 3055, **1976**, with carbon disulfide in the presence of a base such as a carbonate, for example potassium carbonate, a metal hydride, for example sodium hydride, or potassium fluoride on aluminum, and an alkylating agent of the formula V, in which  $Y_2$  is a leaving group such as halogen, for example iodine, bromine and, in particular, chlorine,  $CH_3SO_2O^-$  or

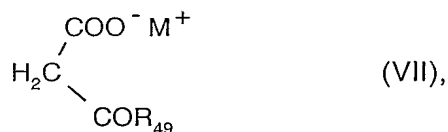


amide, for example N,N-dimethylformamide (DMF), a sulfoxide, for example dimethyl sulfoxide (DMSO), or a nitrile, for example acetonitrile. The ketene thioacetal of the formula VI that is formed is cyclized with the aid of hydroxylamine hydrochloride in the presence of a base such as sodium acetate in a solvent such as an alcohol, for example ethanol, or an ether, for example tetrahydrofuran, to give the isomeric compounds of the formulae Ic and Id (in which n is 0). This cyclization reaction is carried out at temperatures of from 0°C to 100°C. If appropriate, the compounds of the formulae Ic and Id in which n is 0 can be oxidized similarly to known standard processes as described, for example, in H. O. House, "Modern Synthetic Reactions", W. A. Benjamin, Inc., Menlo Park, California, 1972, pages 334-335 and 353-354, to give the corresponding sulfones and sulfoxides of the formulae Ie and If (n = 1 or 2).

The compounds of the formula IV in reaction scheme 2 can be obtained by standard processes for example from the corresponding compounds of the formula Ia



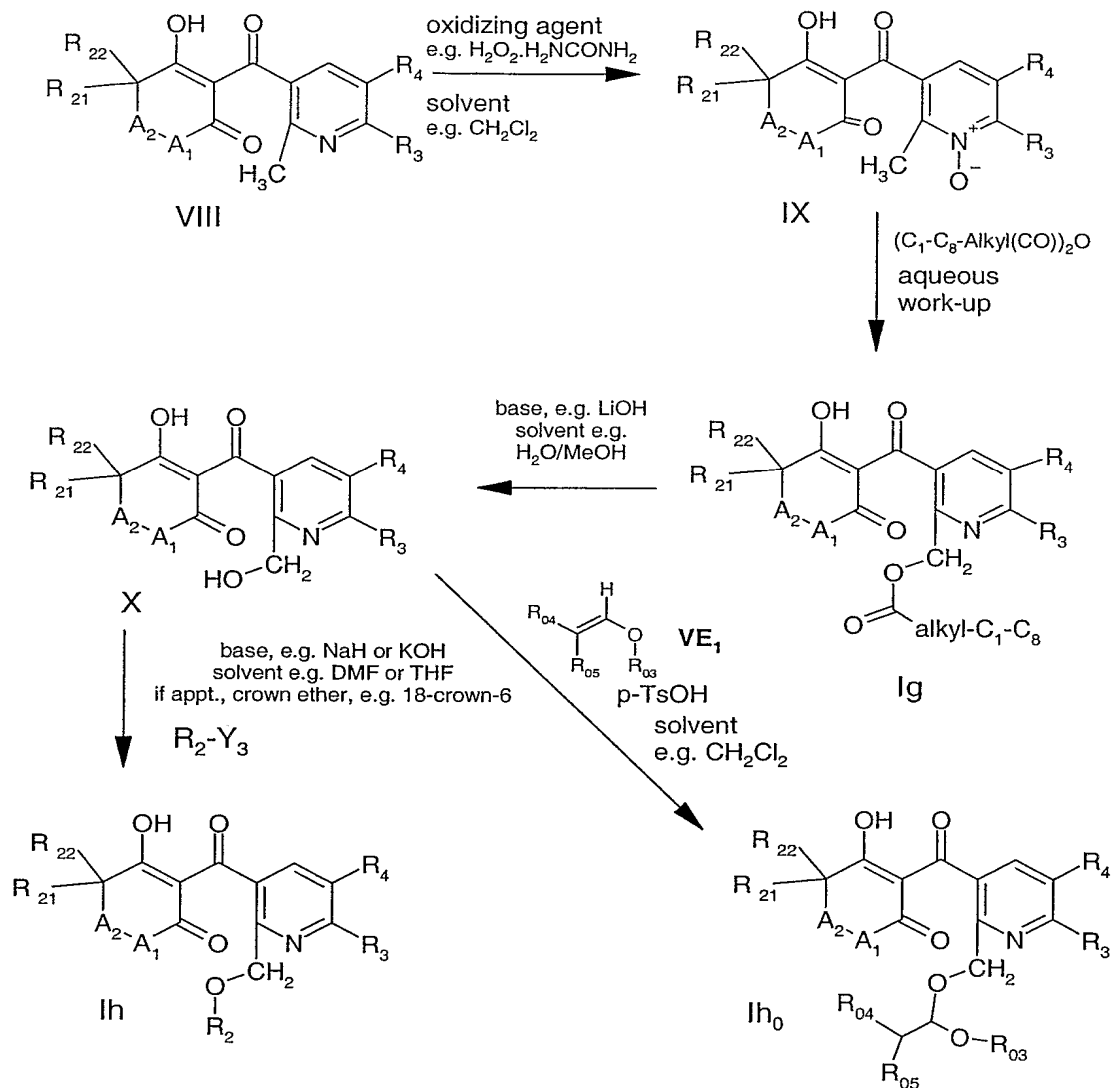
in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ , and  $X_1$  are as defined above and  $Y_1$  is a leaving group, for example halogen, for example by Claisen condensation, or from the compounds of the formula Ia by reaction with a ketocarboxylic acid salt of the formula VII



in which  $R_{49}$  is as defined under formula I and  $\text{M}^+$  is an alkali metal ion (cf., for example, WO 96/26192).

Compounds of the formula I, in which  $R_1$  is, in particular  $\text{C}_1$ - $\text{C}_2$ alkyl, can, for example, also be prepared by heating an N-oxide of the formula IX under known reaction conditions in the presence of an acid anhydride (see, for example, Konno, K.; Hashimoto, K.; Shirahama, H.; Matsumoto, T.; *Heterocycles* **1986**, 24, 2169, or WO 00/15615) and hydrolyzing the resulting products (Ig) in a protic solvent, for example water or a water/methanol mixture, if appropriate in the presence of a base (for example lithium hydroxide or sodium hydroxide), and then converting the resulting alcohol X in the presence of a base, for example sodium hydride or potassium hydroxide, if appropriate in the presence of a phase-transfer catalyst or a crown ether, and an alkylating agent  $\text{R}_2\text{-Y}_3$ , in which  $\text{R}_2$  is as defined under formula I and  $\text{Y}_3$  is a leaving group, for example halogen or methyl sulfonate, in an aprotic solvent, for example, tetrahydrofuran or dimethylformamide, into the corresponding derivatives of the formula Ih (in which  $\text{X}_1$  is oxygen). Compounds of the formula I, in which  $\text{R}_2$  is  $\text{C}_1$ - $\text{C}_6$ alkoxymethyl or 2-tetrahydropyranyl or 2-tetrahydrofuryl, can be prepared, for example, by treating an alcohol of the formula X with a vinyl ether of the formula  $\text{VE}_1$ , in which  $\text{R}_{03}$ ,  $\text{R}_{04}$ , and  $\text{R}_{05}$  are  $\text{C}_1$ - $\text{C}_6$ alkyl or  $\text{R}_{03}$  together with  $\text{R}_{05}$  forms a  $\text{C}_2$ - $\text{C}_3$ alkylene chain, in the presence of an acidic catalyst, for example para-toluenesulphonic acid, in an inert solvent, for example methylene chloride. Such reactions are generally known in the literature (see, for example, *Synthesis*, p. 169, **1973**). The two reaction sequences are demonstrated using the example below:

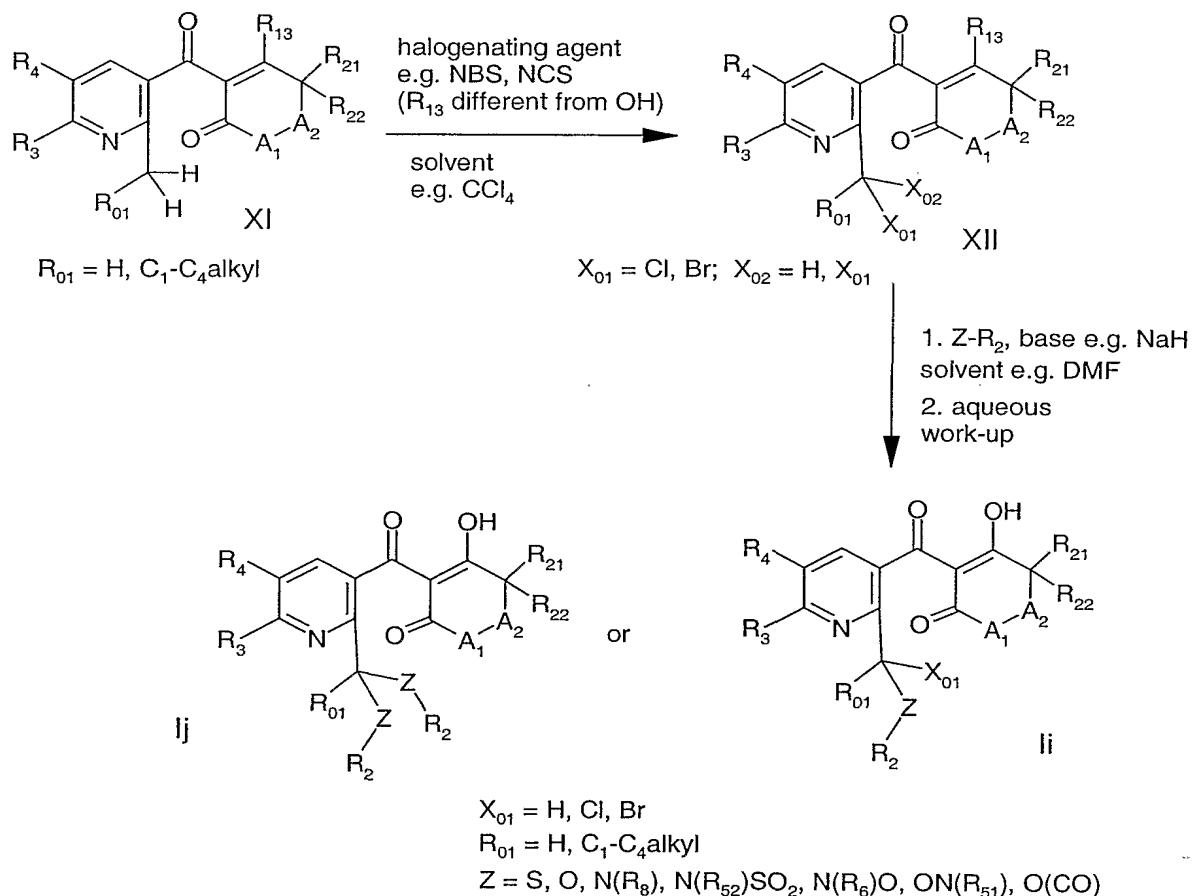
## Reaction scheme 3



Compounds of the formula I, in which  $\text{R}_1$  is, in particular,  $\text{C}_1\text{-C}_2$ alkyl or  $\text{C}_1\text{-C}_2$ haloalkyl, can, for example, also be prepared by oxidizing a compound of the formula XI, in which  $\text{R}_{13}$  is in particular chlorine,  $\text{C}_1\text{-C}_4$ alkoxycarbonyloxy or benzoylcarbonyloxy (prepared similarly to WO 00/15615 or WO/0039094), under known halogenation conditions using, for example, N-bromosuccinimide or N-chlorosuccinimide in the presence of light and a free-radical initiator such as benzoyl peroxide to give the 1-bromo or 1-chloro, 1,1-dibromo or 1,1-dichloro compound and then refunctionalizing these compounds into the corresponding derivatives of the formula I, for example by reaction with a nucleophile  $\text{R}_2\text{-Z}$ , in which Z is, for example,  $-\text{SH}$ ,  $-\text{OH}$ ,  $-\text{C}(\text{O})\text{OH}$ ,  $-\text{O}-\text{N}(\text{R}_{51})\text{H}$ ,  $-\text{N}(\text{R}_6)-\text{OH}$ ,  $-\text{SO}_2\text{N}(\text{R}_{52})\text{H}$  or  $-\text{N}(\text{R}_8)\text{H}$  and  $\text{R}_2$ ,  $\text{R}_{52}$ ,

$R_8$ ,  $R_6$  and  $R_{51}$  are as defined under formula I, in the presence of a base, for example sodium hydride, potassium hydroxide or potassium carbonate, followed by aqueous work-up. These reaction sequences, too, are demonstrated by the example below.

#### Reaction scheme 4

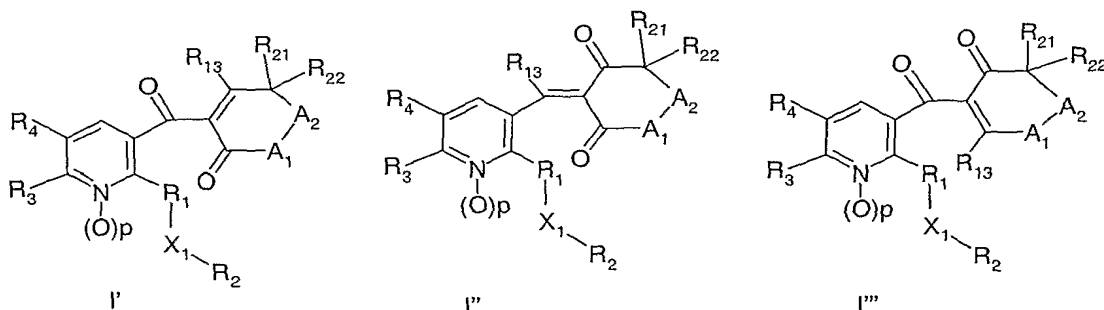


Compounds of the formula I, in which Q denotes  $Q_1$  or  $Q_2$  and in which  $R_{13}$  or  $R_{36}$  are different from hydroxyl or halogen, can be prepared by conversion processes generally known from the literature, for example acylations or carbamoylations with appropriate acid chlorides from compounds of the formula I, in which  $R_{13}$  or  $R_{36}$  is hydroxyl, in the presence of a suitable base, or they can be prepared by nucleophilic substitution reactions on chlorides of the formula I, in which  $R_{13}$  and  $R_{36}$  are chlorine, the chlorides likewise being obtainable according to known processes by reaction with a chlorinating agent, such as phosgene, thionyl chloride or oxalyl chloride. The starting materials used are, for example, appropriately substituted amines, or hydroxylamines directly, or alkylsulfonamides, mercaptans,

thiophenols, phenols, heterocyclic amines or heterocyclic thiols in the presence of a base, for example 5-ethyl-2-methylpyridine, diisopropylethylamine, triethylamine, sodium bicarbonate, sodium acetate or potassium carbonate.

Compounds of the formula I, in which  $R_{13}$  and  $R_{36}$  contain thio groups, can be oxidized similarly to known standard processes using, for example, peracids, for example meta-chloroperbenzoic acid (m-CPBA) or peracetic acid, to give the corresponding sulfones and sulfoxides of the formula I. The degree of oxidation at the sulfur atom ( $SO^-$  or  $SO_2^-$ ) can be controlled by the amount of oxidizing agent.

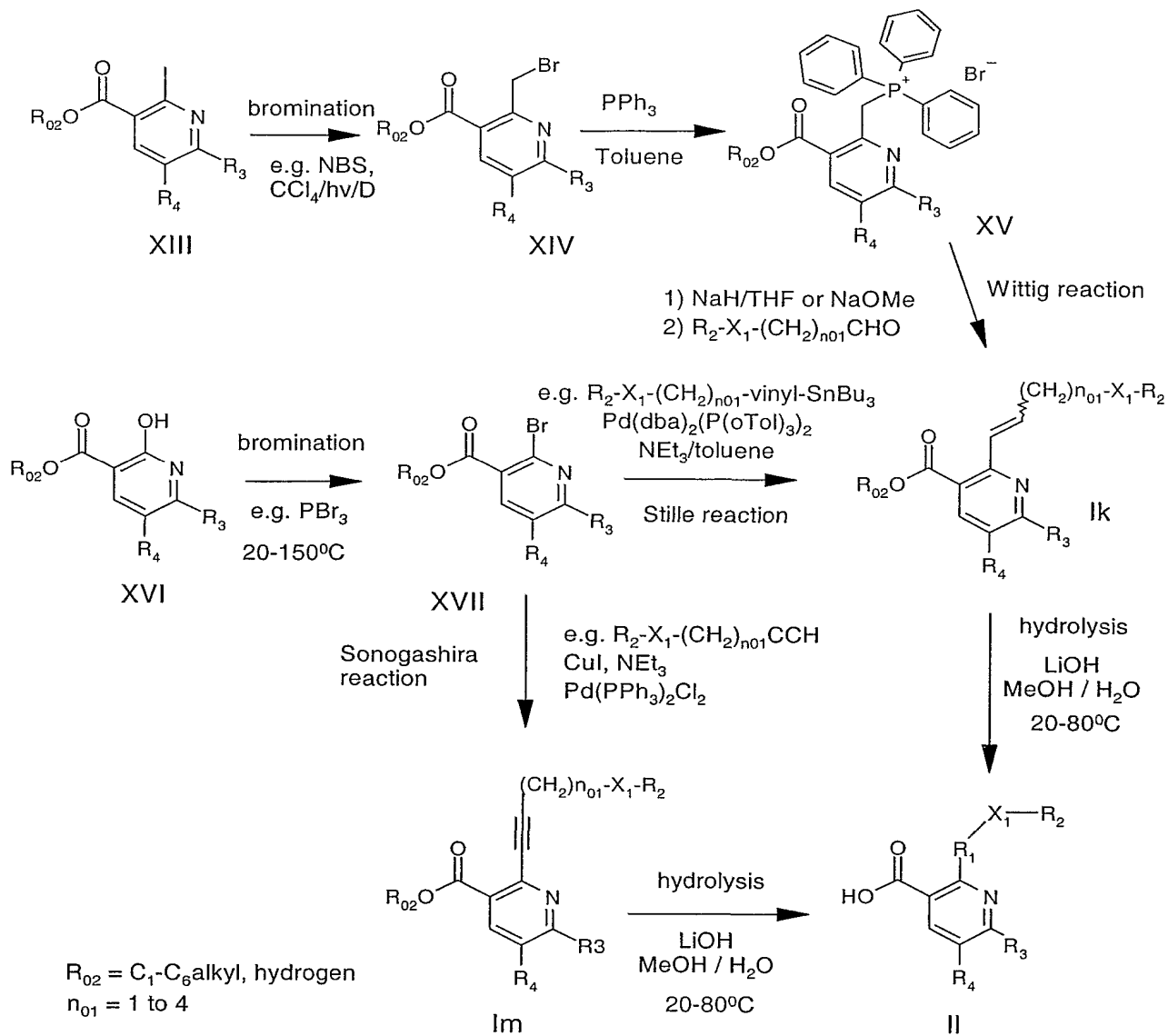
The resulting derivatives of the formula I, in which  $R_{13}$  and  $R_{36}$  are different from hydroxyl, can likewise occur in different isomeric forms which, if appropriate, can be isolated in pure form. Accordingly, the invention also embraces all of these stereoisomeric forms. Examples of these isomeric forms are the formulae I', I'' and I''' below in which Q denotes the group  $Q_1$ .



The compounds of the formulae II and IIa are known and can be prepared similarly as described, for example, in WO 92/07837, JP 10265441, DE-A-3818958, EP-A-0 338 992, DE-A-3902818, EP-A-0 278 742, WO 98/29412, JP 02059566, US-A-5,089,046, GB-A-2205316, WO 00/27821 or EP-A-0 384 736.

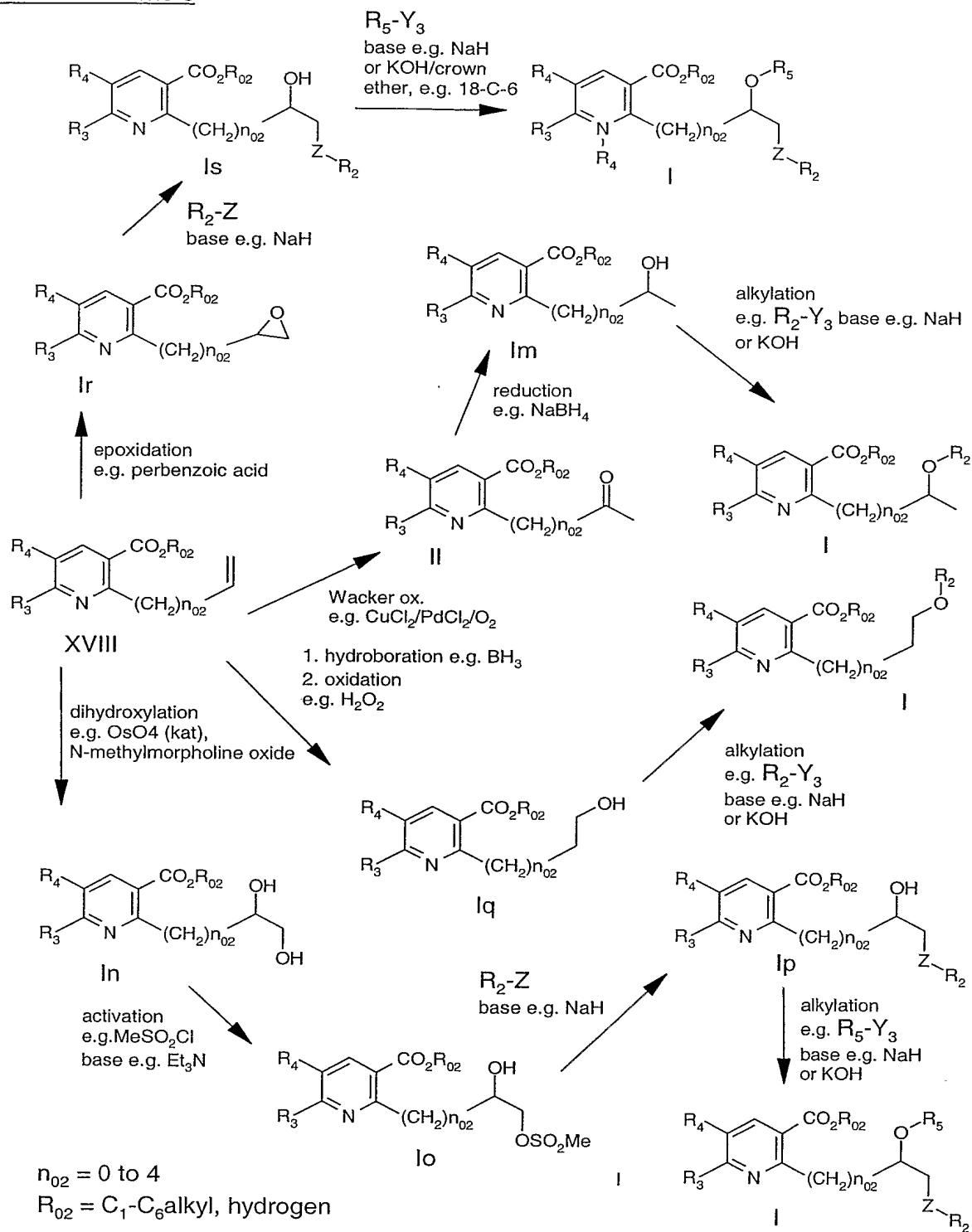
The required intermediates of the formula Ib (or Ik, Il or Im) are synthesized similarly to known processes as described, for example, in WO 00/15615, WO/00/39094 or WO 97/46530, or they can be prepared for example, according to generally known conversion methods such as the Stille (see, for example *Angew. Chem.* **1986**, 98(6), 504-19), Heck (see, for example, *Angew. Chem.* **1994**, 106 (23/24), 2473-506), Sonogashira (see, for example, "*Comprehensive Organometallic Synthesis*", Pergamon Verlag, Oxford, Vol 3, **1991**, page 521 ff.) or Wittig (for example C. Ferri "*Reaktionen der organischen Synthese*", Georg Thieme Verlag, Stuttgart, **1978**, p. 354 ff.) reactions, starting from halogen derivatives of the formula XIV (preparation as described in WO 00/15615 or WO/0039094) or XVII (preparation similar to EP 522392) (reaction scheme 5):

## Reaction scheme 5



Intermediates of the formula Ib, in which R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and X<sub>1</sub> are as defined under formula I, can also be prepared by the method according to reaction scheme 6:

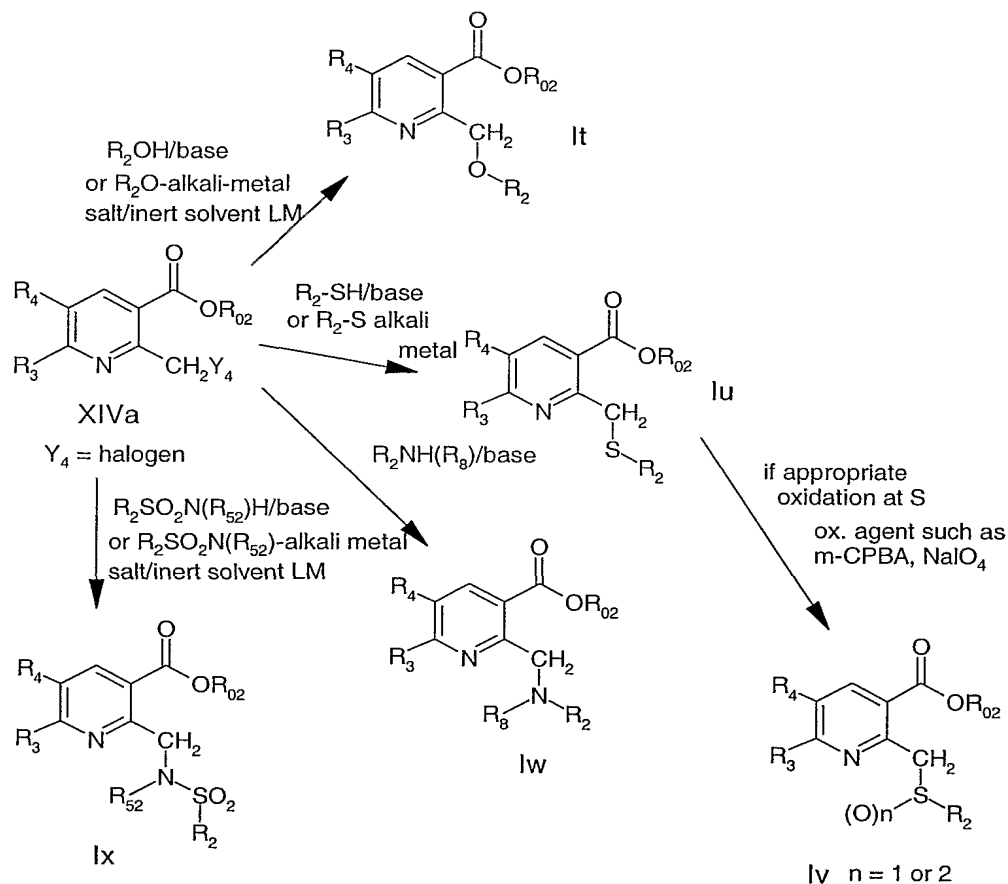
## Reaction scheme 6



Using generally known oxidation methods such as dihydroxylation, Wacker oxidation, epoxidation, hydroboration with subsequent oxidation, starting with vinyl or allyl compounds of the formula XVIII (preparation as described in WO 00/15615 or WO/0039094), intermediates of the formulae II, In, Iq and Ir are obtained which can be converted by conversion processes known to the person skilled in the art (for example alcohol activation, for example as sulfonate, alkylation, for example using an alkylating agent  $R_2-Y_3$  or  $R_5-Y_3$ , in which  $R_2$  and  $R_5$  are as defined under formula I and  $Y_3$  is a leaving group, for example halogen), in the presence of a base, or using nucleophile reactions, for example with a nucleophile  $Z-R_2$ , in which Z and  $R_2$  are as defined above, into compounds of the formula I.

Intermediates of the formula Ib, in which  $R_1$  is  $C_1$ - $C_2$ alkyl and  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I, can also be prepared by reacting a compound of the formula XIVa, in which  $R_3$  and  $R_4$  are as defined above under formula I and  $Y_4$  is halogen, with a nucleophile  $R_2-Z$ , in which Z is -SH, -OH, -C(O)OH, -O-N( $R_{51}$ )H, -N( $R_6$ )-OH -SO<sub>2</sub>N( $R_{52}$ )H or -N( $R_8$ )H and  $R_2$ ,  $R_{52}$ ,  $R_8$ ,  $R_6$ ,  $R_{51}$  are as defined above under formula I, in the presence of a base such as sodium hydride or an alkaline earth metal oxide or carbonate in an inert solvent such as dimethylformamide or THF at temperatures between -5 and 160°C, or, to prepare the corresponding sulfinyl or sulfonyl derivatives of the formula Iu, by reacting with an oxidizing agent such as m-chloroperbenzoic acid or sodium periodate, or sodium perborate, with, depending on the degree of oxidation, temperature control known to the person skilled in the art (for example -30°C-+50°C for  $n=1$  and -20°C-+100°C for  $n=2$  respectively) , in an inert solvent such as dichloromethane, to give compound of the formula Iv. In reaction scheme 7 below, this is illustrated in more detail for the case  $Z = OH$ , SH, SO<sub>2</sub>N( $R_{52}$ )H and N( $R_8$ )H:

## Reaction scheme 7



Intermediates of the formula I, in which Q denotes a group  $\text{OR}_{02}$  ( $R_{02} = \text{C}_1\text{-C}_6\text{alkyl}$ ), can be converted by hydrolysis using, for example, a base, for example  $\text{LiOH}$ , in a protic solvent, for example  $\text{H}_2\text{O}$  or  $\text{H}_2\text{O}/\text{methanol}$  mixtures, into products of the formula Ib.

For preparing all further compounds of the formula I functionalized according to the definitions of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$ , there are a large number of suitable known standard methods, for example alkylation, halogenation, acylation, amidation, oximation, oxidation and reduction, the choice of the preparation methods which are suitable depending on the properties (reactivity) of the substituents in the intermediates.

The reactions to give compounds of the formula I are advantageously carried out in aprotic inert organic solvents. Such solvents are hydrocarbons such as benzene, toluene, xylene or cyclohexane, chlorinated hydrocarbons such as dichloromethane, trichloromethane, tetrachloromethane or chlorobenzene, ethers such as diethyl ether, ethylene glycol dimethyl

ether, diethylene glycol dimethyl ether, tetrahydrofuran or dioxane, nitriles such as acetonitrile or propionitrile, amides such as N,N-dimethylformamide, diethylformamide or N-methylpyrrolidinone. The reaction temperatures are advantageously between -20°C and +120°C. In general, the reactions are slightly exothermic and, as a rule, they can be carried out at room temperature. To shorten the reaction time, or else to start the reaction, the mixture may be heated briefly to the boiling point of the reaction mixture. The reaction times can also be shortened by adding a few drops of base as reaction catalyst. Suitable bases are, in particular, tertiary amines such as trimethylamine, triethylamine, quinuclidine, 1,4-diazabicyclo[2.2.2]octane, 1,5-diazabicyclo[4.3.0]non-5-ene or 1,5-diazabicyclo[5.4.0]undec-7-ene. However, inorganic bases such as hydrides, e.g. sodium hydride or calcium hydride, hydroxides, e.g. sodium hydroxide or potassium hydroxide, carbonates such as sodium carbonate and potassium carbonate, or hydrogen carbonates such as potassium hydrogen carbonate and sodium hydrogen carbonate may also be used as bases. The bases can be used as such or else with catalytic amounts of a phase-transfer catalyst, for example a crown ether, in particular 18-crown-6, or a tetraalkylammonium salt.

The compounds of the formula I can be isolated in the customary manner by concentrating and/or by evaporating the solvent and purified by recrystallization or trituration of the solid residue in solvents in which they are not readily soluble, such as ethers, aromatic hydrocarbons or chlorinated hydrocarbons.

All application methods which are conventionally used in agriculture, for example pre-emergence application, post-emergence application and seed treatment, as well as various methods and techniques, for example the controlled release of active ingredients, are suitable for the use according to the invention of the compounds of the formula I or of compositions comprising them. To this end, the active ingredient in solution is applied to mineral carriers for granules or to polymerized granules (urea/formaldehyde) and dried. If appropriate, an additional coating can be applied (coated granules), which allows the active ingredient to be released in a controlled manner over a specific period of time.

The compounds of the formula I can be employed as herbicides as such, i.e. as obtained from synthesis. However, they are preferably processed in the customary manner together with the auxiliaries conventionally used in the art of formulation, for example to give emulsifiable concentrates, directly sprayable or dilutable solutions, dilute emulsions, wettable powders, soluble powders, dusts, granules or microcapsules. Such formulations are described, for example, in WO 97/34485 on pages 9 to 13. The application methods such as

spraying, atomizing, dusting, wetting, scattering or pouring, as well as the type of composition, are chosen to suit the intended aims and the prevailing circumstances.

The formulations, i.e. the compositions, preparations or products which comprise the active ingredient of the formula I or at least one active ingredient of the formula I and, as a rule, one or more solid or liquid formulation auxiliaries, are prepared in the known manner, for example by intimately mixing and/or grinding the active ingredients together with the formulation auxiliaries, for example solvents or solid carriers. Furthermore, surface-active compounds (surfactants) may additionally be used when preparing the formulations. Examples of solvents and solid carriers are indicated for example in WO 97/34485 on page 6.

Suitable surface-active compounds are, depending on the nature of the active ingredient of the formula I to be formulated, nonionic, cationic and/or anionic surfactants and surfactant mixtures which have good emulsifying, dispersing and wetting properties. Examples of suitable anionic, nonionic and cationic surfactants are enumerated, for example, in WO 97/34485 on pages 7 and 8. The surfactants conventionally used in the art of formulation which are described, inter alia, in "McCutcheon's Detergents and Emulsifiers Annual" MC Publishing Corp., Ridgewood New Jersey, 1981, Stache, H., "Tensid-Taschenbuch" ["Surfactants Guide"], Carl Hanser Verlag, Munich/Vienna, 1981 and M. and J. Ash, "Encyclopedia of Surfactants", Vol I-III, Chemical Publishing Co., New York, 1980-81 are furthermore also suitable for preparing the herbicidal compositions according to the invention.

As a rule, the herbicidal formulations comprise 0.1 to 99% by weight, in particular 0.1 to 95% by weight, of herbicide, 1 to 99.9% by weight, in particular 5 to 99.8% by weight, of a solid or liquid formulation auxiliary and 0 to 25% by weight, in particular 0.1 to 25% by weight, of a surfactant. While concentrated compositions are more preferred as commercially available goods, the end consumer uses, as a rule, dilute compositions. The compositions can also comprise further additives such as stabilizers, for example epoxidized or non-epoxidized vegetable oils (epoxidized coconut oil, rapeseed oil or soya oil), antifoams, e.g. silicone oil, preservatives, viscosity regulators, binders, tackifiers and fertilizers or other active ingredients.

As a rule, the active ingredients of the formula I are applied to the plant or its environment at rates of 0.001 to 4 kg/ha, in particular 0.005 to 2 kg/ha. The dosage required for the desired

action can be determined by experiments. It depends on the type of the action, the developmental stage of the crop plant and of the weed, and on the application (location, timing, method) and can, owing to these parameters, vary within wide limits.

The compounds of the formula I are distinguished by herbicidal and growth-inhibitory properties which allow them to be employed in crops of useful plants, in particular in cereals, cotton, soya, sugar beet, sugar cane, plantation crops, rapeseed, maize and rice and for the non-selective control of weeds. Crops are also to be understood as including those which have been rendered tolerant to herbicides or classes of herbicides by means of conventional plant-breeding or genetic-engineering methods. The weeds to be controlled may be both mono- and dicotyledonous weeds such as *Stellaria*, *Nasturtium*, *Agrostis*, *Digitaria*, *Avena*, *Setaria*, *Sinapis*, *Lolium*, *Solanum*, *Echinochloa*, *Scirpus*, *Monochoria*, *Sagittaria*, *Bromus*, *Alopecurus*, *Sorghum halepense*, *Rottboellia*, *Cyperus*, *Abutilon*, *Sida*, *Xanthium*, *Amaranthus*, *Chenopodium*, *Ipomoea*, *Chrysanthemum*, *Galium*, *Viola* and *Veronica*.

The examples which follow illustrate the invention in greater detail without limiting it.

Preparation examples:

Example H1: Preparation of ethyl 2-bromomethyl-6-trifluoromethylnicotinate:

434.4 g (1.866 mol) of ethyl 2-methyl-6-trifluoromethylnicotinate (preparation similar to *Heterocycles* 129, 46, 1997) and 398.5 g (2.239 mol) of N-bromosuccinimide in 3 500 ml of carbon tetrachloride in the presence of 30.6 g (0.1866 mol) of  $\alpha,\alpha$ -azaisobutyronitrile are heated at 75°C, with irradiation from a 150 Watt lamp. After 3 hours, the reaction is terminated, the mixture is cooled to 15°C and precipitated succinimide is removed by filtration. After evaporation of the solvent, the residue is distilled under reduced pressure. This gives ethyl 2-bromomethyl-6-trifluoromethylnicotinate as an oily product (260.2 g, 44.7% of theory, b.p. 74°C/0.04 mmHg).

Example H2: 2-(2-Methoxyethoxymethyl)-6-trifluoromethylnicotinic acid:

At room temperature, 177.2 g of ethyl 2-bromomethyl-6-trifluoromethylnicotinate are dissolved in 3 000 ml of toluene and reacted with 398 ml (1.704 mol) of a 21% ethanolic solution of sodium ethoxide. After 8 hours at room temperature, 1500 ml of ethanol and 100 ml of 30% aqueous sodium hydroxide solution are added with vigorous stirring, and the

reaction mixture is stirred at this temperature for another 4 hours. The reaction mixture is poured into water and extracted with ethyl acetate, and the aqueous phase is acidified to pH 1. Following extraction with ethyl acetate, drying over sodium sulfate, evaporation under reduced pressure and trituration with hexane, pure 2-(2-methoxyethoxymethyl)-6-trifluoromethylnicotinic acid is obtained in the form of white crystals of melting point 62-63°C.

Example H3: 4-Hydroxy-3-[2-(2-methoxyethoxymethyl)-6-trifluoromethylpyridine-3-carbonyl]-bicyclo[3.2.1]oct-3-en-2-one:

24.9 g (0.1 mol) of 2-(2-methoxyethoxymethyl)-6-trifluoromethylnicotinic acid are dissolved in 200 ml of methylene chloride and 20 ml of oxalyl chloride, and 0.1 ml of dimethylformamide is then added dropwise. After the strong evolution of gas has ceased, triethylamine (27.9 ml, 0.2 mol), dimethylaminopyridine (1.22 g, 0.01 mol) and 15.2 g (0.11 mol) of bicyclo[3.2.1]octane-2,4-dione are added at a temperature of from 0 to 5°C. After 3 hours at 22°C, the reaction mixture is extracted with 2 N hydrochloric acid. The methylenechloride phase is separated off, washed with water and then extracted with 10% aqueous sodium bicarbonate solution, dried over sodium sulfate and concentrated. This gives 36.9 g (100% of theory) of 4-oxobicyclo[3.2.1]oct-2-en-2-yl 2-(2-methoxyethoxymethyl)-6-trifluoromethylnicotinate as an oil, which can be used further without purification.

36.9 g (0.1 mol) of 4-oxobicyclo[3.2.1]oct-2-en-2-yl 2-(2-methoxyethoxymethyl)-6-trifluoromethylnicotinate and 27.9 ml (0.2 mol) of triethylamine are dissolved in 400 ml of acetonitrile. At a temperature of 22°C, 0.92 ml (0.01 mol) of acetone cyanohydrin is added. After 18 hours at 22°C, the reaction mixture is poured into a water/2 N hydrochloric acid mixture and extracted with ethyl acetate. The ethyl acetate phase is washed with water and then with concentrated sodium chloride solution, dried over sodium sulfate and concentrated, and the residue is trituated with hexane. Filtration gives 27.9 g (75.6% of theory) of 4-hydroxyl-3-[2-(2-methoxyethoxymethyl)-6-trifluoromethylpyridine-3-carbonyl]bicyclo[3.2.1]oct-3-en-2-one in the form of white crystals (m.p. 55-56°C).

Example H4: 3-(2-Hydroxy-4-oxobicyclo[3.2.1]oct-2-en-3-carbonyl)-6-trifluoromethylpyridin-2-yl methyl acetate:

5.0 g (1 mmol) of 4-hydroxy-3-(2-methyl-1-oxy-6-trifluoromethylpyridin-3-carbonyl)-bicyclo[3.2.1]oct-3-en-2-one (preparation as described in WO 00/15615) are dissolved in 100 ml of toluene and, in the presence of 6.9 ml (0.073 mol) of acetic anhydride, heated at reflux temperature for 10 hours. The mixture is then partitioned between water and ethyl acetate and the organic phase is dried over sodium sulfate and concentrated under reduced pressure. The residue that remains is chromatographed on silica gel. The viscous oil obtained by eluting with a mixture of toluene, ethyl alcohol, dioxane, triethylamine and water (100:40:20:20:5 parts by volume) is dissolved in ethyl acetate and washed successively with 10% hydrochloric acid and water. The organic solution is dried over Na<sub>2</sub>SO<sub>4</sub> and concentrated, giving 2.14 g (38%) of pure 3-(2-hydroxy-4-oxobicyclo[3.2.1]oct-2-ene-3-carbonyl)-6-trifluoromethylpyridin-2-ylmethyl acetate in the form of an oil. <sup>1</sup>H-NMR (250 MHz, CDCl<sub>3</sub>): 17.06 (s), 1H; 7.67 (s), 2H; 5.27 (d, J = 12.5 Hz), 1H; 5.20 (d, J = 12.5 Hz), 1H; 3.18, (t, J = 5.0 Hz), 1H; 2.92, (t, J = 5.0 Hz), 1H; 2.29-1.98 (m), 4H; 2.00, (s), 3H; 1.81-1.73 ppm (m), 2H.

Example H5: 4-Hydroxy-3-(2-oxiranylmethoxymethyl-6-trifluoromethylpyridine-3-carbonyl)-bicyclo[3.2.1]oct-3-en-2-one:

5 g (0.013 mol) of 3-(2-hydroxy-4-oxobicyclo[3.2.1]oct-2-ene-3-carbonyl)-6-trifluoromethylpyridin-2-ylmethyl acetate are dissolved in 60 ml of methanol/water (3:1 mixture), and 1.4 g (0.046 mol) of lithium hydroxide hydrate are added a little at a time at a temperature of 22°C. After 3 hours at 22°C, the reaction mixture is poured into ethyl acetate and 10% hydrochloric acid, and the organic phase is washed three times with water, dried with sodium sulfate and concentrated. This gives 4.1 g of 4-hydroxy-3-(2-hydroxymethyl-6-trifluoromethylpyridine-3-carbonyl)bicyclo[3.2.1]oct-3-en-2-one as an oil which can be reacted further without purification.

1.5 g of 4-hydroxy-3-(2-hydroxymethyl-6-trifluoromethylpyridine-3-carbonyl)-bicyclo[3.2.1]oct-3-en-2-one are dissolved in 15 ml of dimethylformamide and, at room temperature, treated with 0.4 g of sodium hydride (80% suspension in oil, 0.013 mol), a little at a time. After 15 minutes at a temperature of 22°C, 3ml (0.036 mol) of epibromohydrin are added dropwise,


and the reaction mixture is stirred at this temperature for another 18 hours. Ethyl acetate is then added, and the mixture is acidified to pH 3 using 10% hydrochloric acid and extracted with ethyl acetate. The organic phase is dried over sodium sulfate and the crude product is purified chromatographically (mobile phase: toluene/ethyl alcohol/dioxane/triethylamine/water 100:40:20:20:5 parts by volume). This gives the title compound (triethylamine salt) in the form of a yellowish resin, which is released similarly to example H4. Trituration with hexane gives 600 mg of pure 4-hydroxy-3-(2-oxiranymethoxymethyl-6-trifluoromethylpyridin-3-carbonyl)bicyclo[3.2.1]oct-3-en-2-one of melting point 54-56°C.

Example H6: (5-Hydroxy-1,3-dimethyl-1H-pyrazol-4-yl)-[2-(2-methoxyethoxymethyl)-6-trifluoromethylpyridin-3-yl]methanone:

1.0 g (0.004 mol) of 2-(2-methoxyethoxymethyl)-6-trifluoromethylnicotinic acid is dissolved in 10 ml of oxalyl chloride. Three drops of dimethylformamide are added, and the mixture is stirred at room temperature for 1 hour. The mixture is then concentrated using a rotary evaporator, and the residue (2-(2-methoxyethoxymethyl)-6-trifluoromethylnicotinoyl chloride) is taken up in 10 ml of methylene chloride. At a temperature of 0°C, 0.84 ml (0.006 mol) of triethylamine and 0.45 g (0.004 mol) of 2,5-dimethyl-2,4-dihydropyrazol-3-one are added. After 2 hours at a temperature of 22°C, the solvent is removed using a vacuum rotary evaporator, and the residue that remains is dissolved in 10 ml of acetonitrile and, to rearrange the intermediate (2,5-dimethyl-2H-pyrazol-3-yl 2-(2-methoxyethoxymethyl)-6-trifluoromethylnicotinate), admixed with 0.1 ml of acetone cyanohydrin and 1.13 ml (0.008 mol) of triethylamine. The reaction solution is stirred at room temperature for four hours and then concentrated. The syrup that remains is chromatographed on silica gel. The viscous oil obtained by eluting with a mixture of toluene, ethyl alcohol, dioxane, triethylamine and water (100:40:20:20:5 parts by volume) is dissolved in ethyl acetate and washed successively with 10% hydrochloric acid and water. The organic solution is dried over Na<sub>2</sub>SO<sub>4</sub> and concentrated, giving 0.93 g of (5-hydroxy-1,3-dimethyl-1H-pyrazol-4-yl)-[2-(2-methoxyethoxymethyl)-6-trifluoromethylpyridin-3-yl]methanone in the form of a viscous oil. <sup>1</sup>H NMR (300 MHz, CDCl<sub>3</sub>, δ in ppm): 7.81, (d, J = 6 Hz), 1H; 7.74, (d, J = 6 Hz), 1H; 4.84, (s), 2H; 2H: 3.71, (s), 3H; 3.59, (t, J = 6 Hz) 2H; 3.38, (dd, J 4.0, 3.0 Hz), 1H; 3.26, (s), 3H; 1.82 ppm, (s), 1H.

Preferred compounds of the formula I and their intermediates are listed in the tables below.

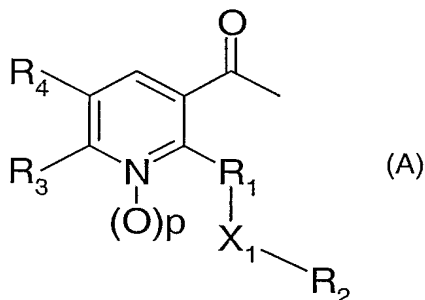
In the table below, the left-hand valency of the radical  $R_1$  is attached to the pyridine ring. If

no free valency is indicated in the substituent  $R_2$ , as, for example, in the case of , the point of attachment is at the "CH" carbon atom.

In the table below, the compounds of the formula I are represented as:




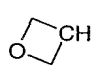
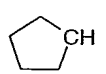
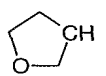
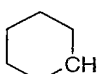
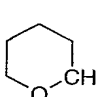
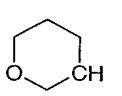
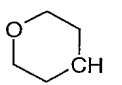
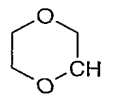
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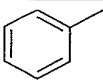
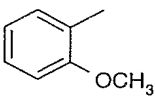
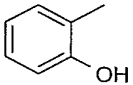
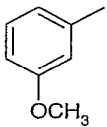
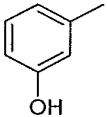

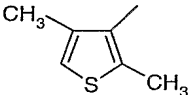
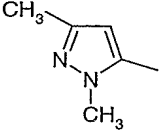
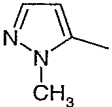
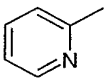
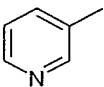
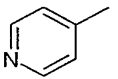
where the formula A

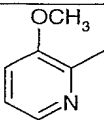
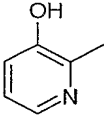
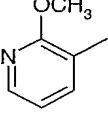
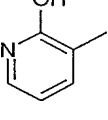
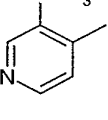
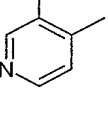


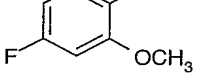
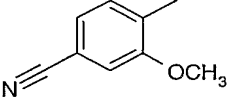
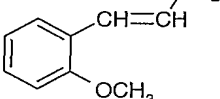


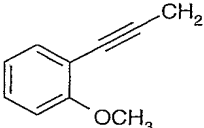
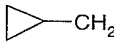
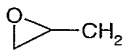
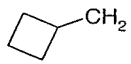
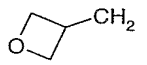
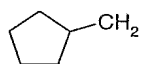
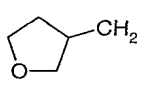
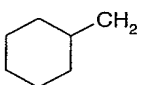
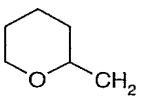
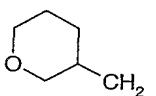
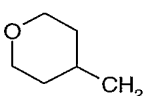
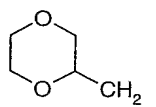
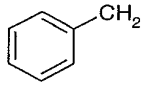
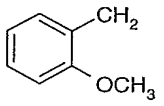
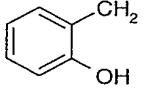
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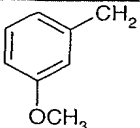
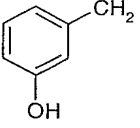
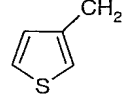
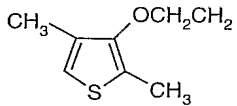
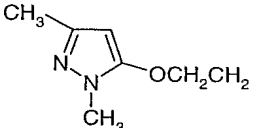
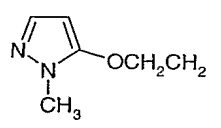
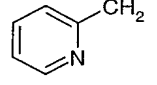
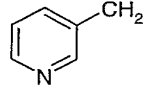
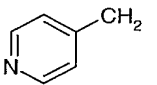
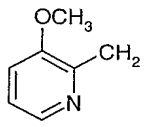
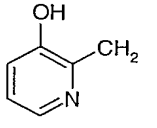
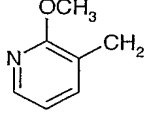
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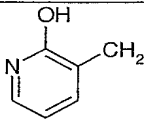
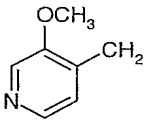
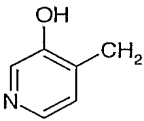
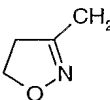
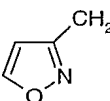
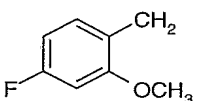
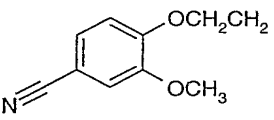
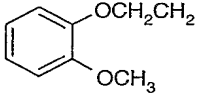
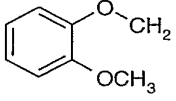
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A32	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A33	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A34	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A35	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A37	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A38	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A39	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A40	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A41	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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









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A44	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A45	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A46	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A47	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A48	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A49	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A50	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A51	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A52	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A53	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A54	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A55	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A56	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A57	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A58	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A59	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A60	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A61	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A62	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A63	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A64	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A65	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A66	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A67	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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
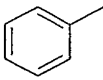
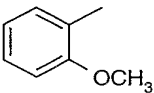
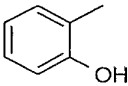
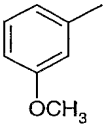
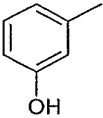

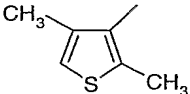
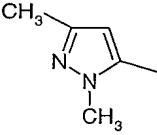
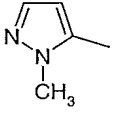
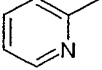
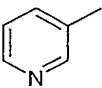
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A70	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A71	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A72	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A73	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A74	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A75	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A76	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A77	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A78	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A79	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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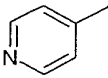
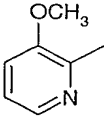
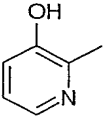
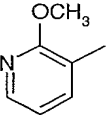
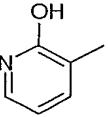
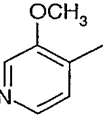
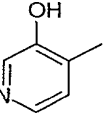


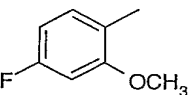
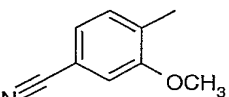
- 46 -

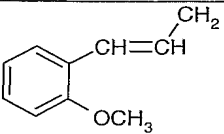
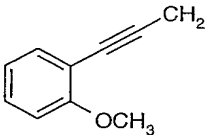
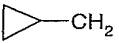
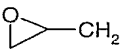
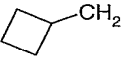
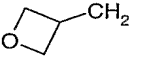
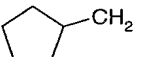
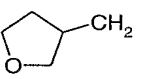
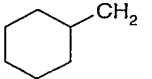
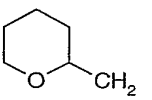
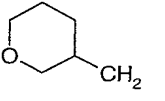
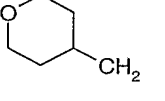
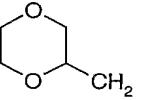
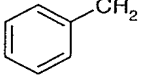
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A82	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A83	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A84	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A85	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A86	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A87	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A88	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A89	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A90	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A91	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	O	0
A92	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A93	CH <sub>2</sub> CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CH	H	CF <sub>3</sub>	O	0
A94	CH <sub>2</sub> CH <sub>2</sub>	PhCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A95	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	S	0
A96	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO	0
A97	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO <sub>2</sub>	0
A98	CH <sub>2</sub> CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>2</sub>	H	CF <sub>3</sub>	O	

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A99	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A100	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A101	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A102	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A103	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A104	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A105	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A106	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> C(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A107	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A108	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A109	CH <sub>2</sub> CH <sub>2</sub>	HC≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A110	CH <sub>2</sub> CH <sub>2</sub>	H <sub>2</sub> C=CHCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A111	CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub> C≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A112	CH <sub>2</sub> CH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A113	CH <sub>2</sub> CH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A114	CH <sub>2</sub> CH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A115	CH <sub>2</sub> CH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A116	CH <sub>2</sub> CH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A117	CH <sub>2</sub> CH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A118	CH <sub>2</sub> CH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A119	CH <sub>2</sub> CH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
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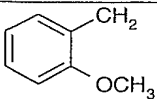
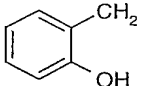
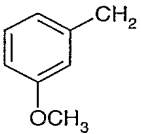
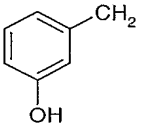
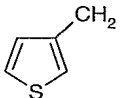
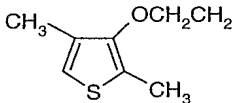
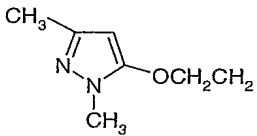
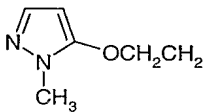
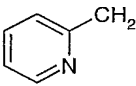
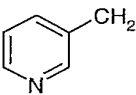
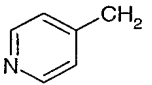
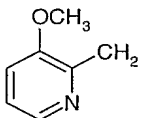
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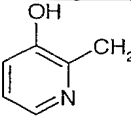
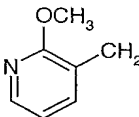
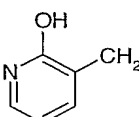
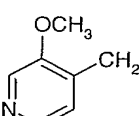
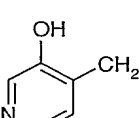
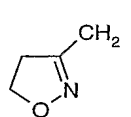
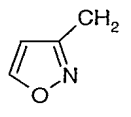
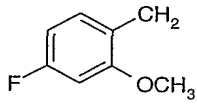
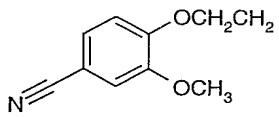
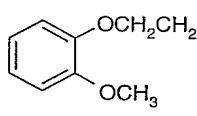
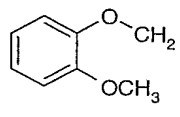
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A122	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A123	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A124	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A125	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A126	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A127	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A128	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A129	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A130	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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







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A134	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A135	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A136	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A137	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A138	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A139	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A143	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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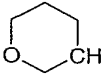
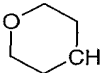
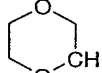
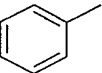
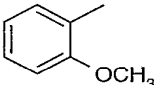
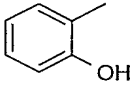
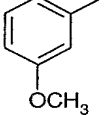
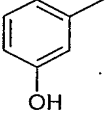

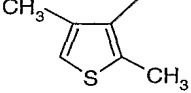
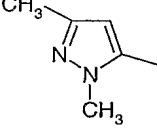
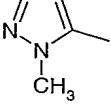
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A145	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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

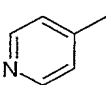
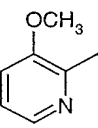
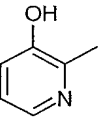
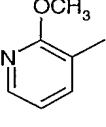
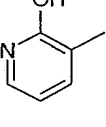
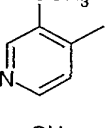
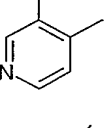


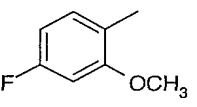
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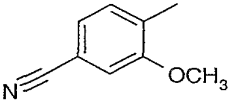
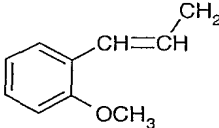
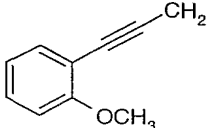
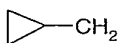
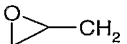
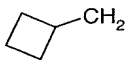
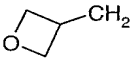
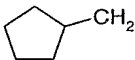
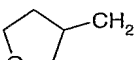
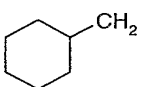
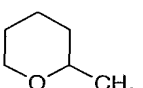
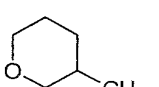
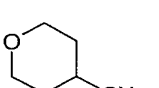
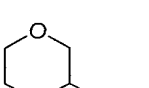
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A160	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A161	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A162	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A163	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A165	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A166	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A167	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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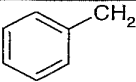
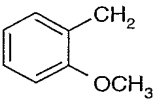
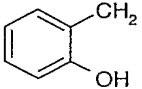
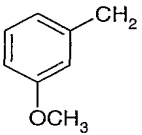
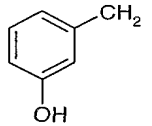
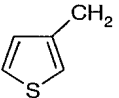
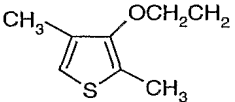
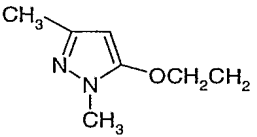
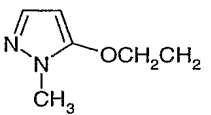
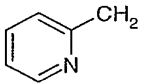
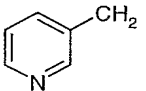
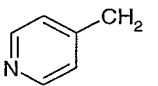
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A177	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A180	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A181	CH <sub>2</sub> CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A182	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	O	0
A183	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A184	CH(OCH <sub>3</sub> )CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CH	H	CF <sub>3</sub>	O	0

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A185	CH(OCH <sub>3</sub> )CH <sub>2</sub>	PhCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A186	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	S	0
A187	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO	0
A188	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO <sub>2</sub>	0
A189	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A190	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A191	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A192	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A193	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A194	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A195	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A196	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A197	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> C(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A198	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A199	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A200	CH(OCH <sub>3</sub> )CH <sub>2</sub>	HC≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A201	CH(OCH <sub>3</sub> )CH <sub>2</sub>	H <sub>2</sub> C=CHCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A202	CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> C≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A203	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A204	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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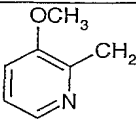
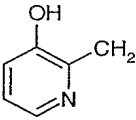
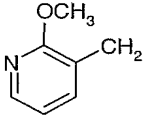
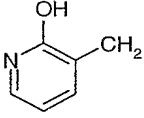
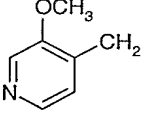
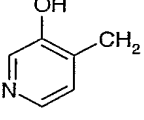
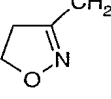
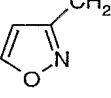
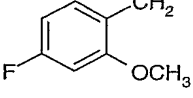
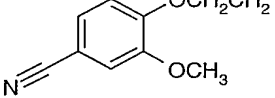
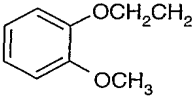
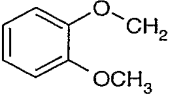
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A212	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A213	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A214	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A215	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A216	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A217	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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





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A224	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A235	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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

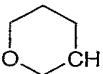
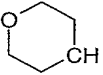

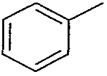
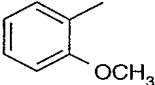
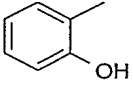
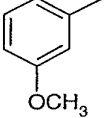
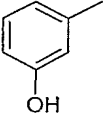

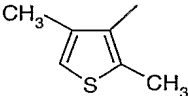
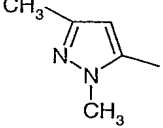
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A250	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A251	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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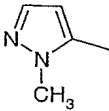
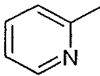
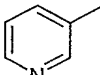
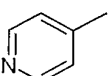
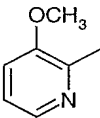
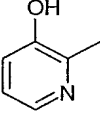
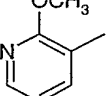
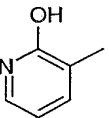
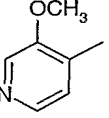
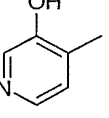


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A262	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A263	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A264	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A265	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A266	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A267	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A268	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A269	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A270	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A271	CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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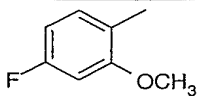
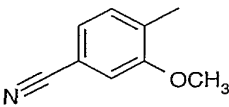
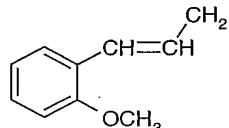
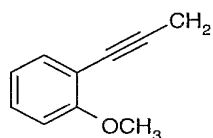
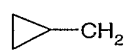
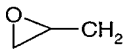
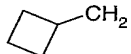
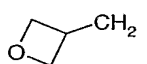
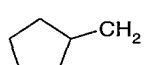
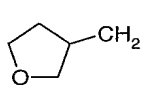
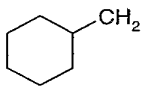
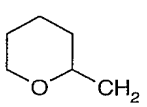
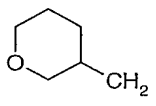
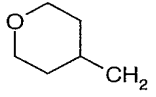
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A274	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A275	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CH	H	CF <sub>3</sub>	O	0
A276	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	PhCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
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A281	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
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A283	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A284	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A285	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A286	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A287	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A288	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> C(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A289	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
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A291	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	HC≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A292	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	H <sub>2</sub> C=CHCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A293	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>	CH <sub>3</sub> C≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
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A295	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A296	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A297	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A298	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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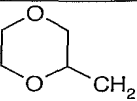
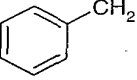
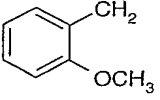
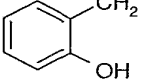
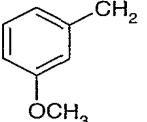
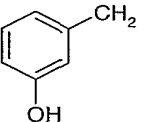
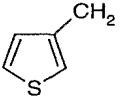
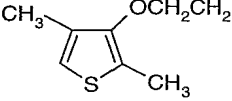
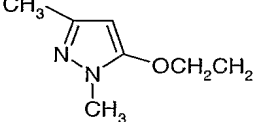
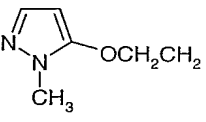
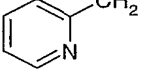
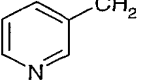
- 60 -

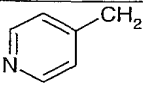
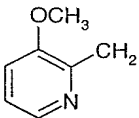
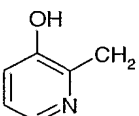
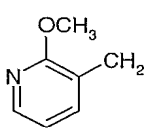
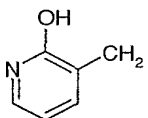
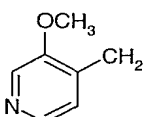
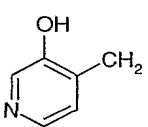
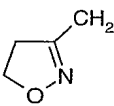
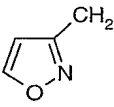
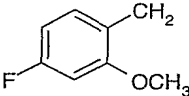
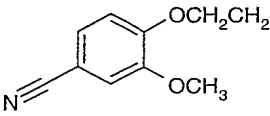
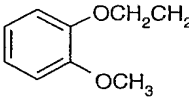
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A303	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A305	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A307	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A309	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	
A310	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A311	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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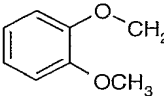





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





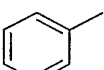
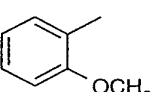
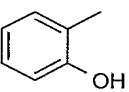
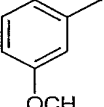
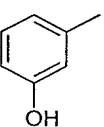

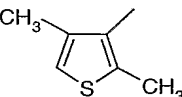
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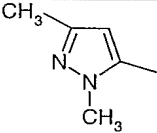
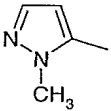
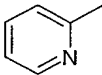
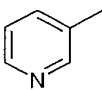
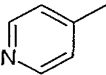
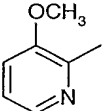
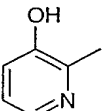
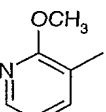
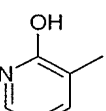
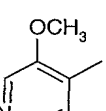
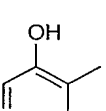
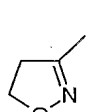
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
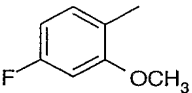
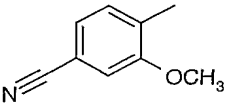
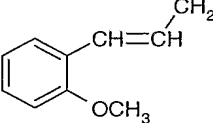
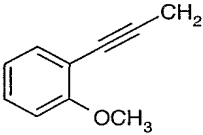
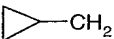
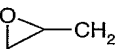
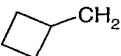
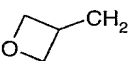
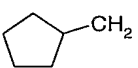
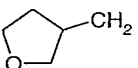
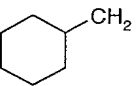
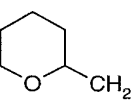
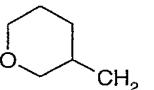
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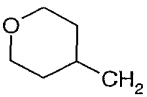
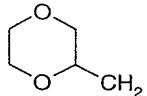
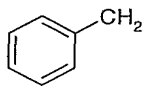
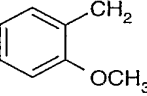
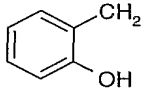
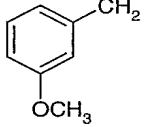
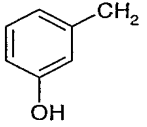
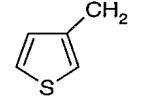
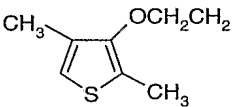
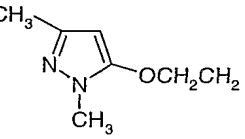
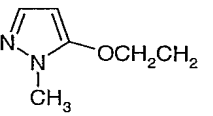
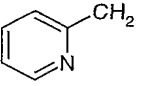
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A359	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A360	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A361	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A362	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A363	CH <sub>2</sub> CH(OCH <sub>3</sub> )CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A364	CH=CHCH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	O	0
A365	CH=CHCH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A366	CH=CHCH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CH	H	CF <sub>3</sub>	O	0
A367	CH=CHCH <sub>2</sub>	PhCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A368	CH=CHCH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	S	0
A369	CH=CHCH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO	0
A370	CH=CHCH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO <sub>2</sub>	0
A371	CH=CHCH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A372	CH=CHCH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A373	CH=CHCH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A374	CH=CHCH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A375	CH=CHCH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A376	CH=CHCH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A377	CH=CHCH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A378	CH=CHCH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A379	CH=CHCH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> C(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A380	CH=CHCH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A381	CH=CHCH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A382	CH=CHCH <sub>2</sub>	HC≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A383	CH=CHCH <sub>2</sub>	H <sub>2</sub> C=CHCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A384	CH=CHCH <sub>2</sub>	CH <sub>3</sub> C≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A385	CH=CHCH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A386	CH=CHCH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A387	CH=CHCH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A388	CH=CHCH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A389	CH=CHCH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0

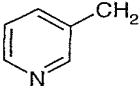
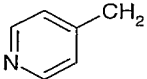
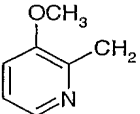
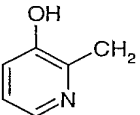
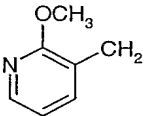
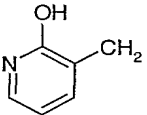
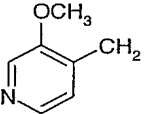
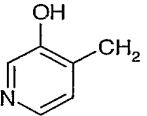
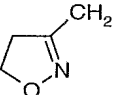
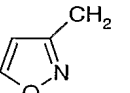
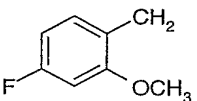
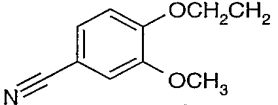
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A390	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A391	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A392	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A393	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A394	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A395	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A396	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A397	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A398	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A399	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A400	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A401	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A402	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0

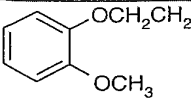
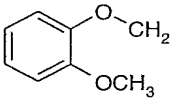



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A403	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A404	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A405	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A406	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A407	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A408	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A409	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A410	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A411	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A412	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A413	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A414	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0










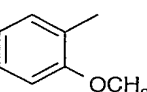
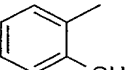
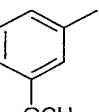
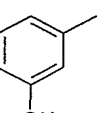

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A415	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A416	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A417	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A418	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A419	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A420	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A421	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A422	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A423	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A424	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A425	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A426	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A427	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A428	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A429	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A430	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A431	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A432	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A433	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A434	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A435	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A436	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A437	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A438	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A439	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A440	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0

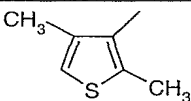
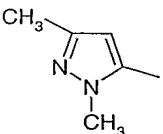
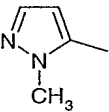
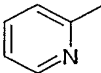
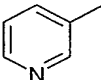
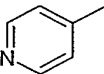
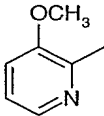
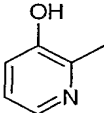
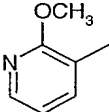
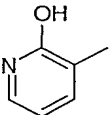
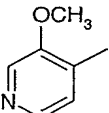
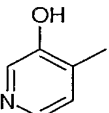
- 70 -



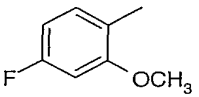
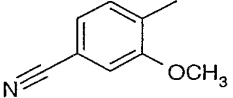
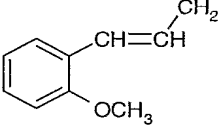
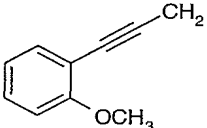
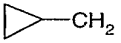
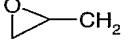
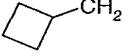
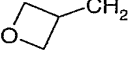
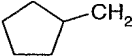
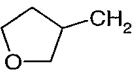
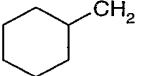
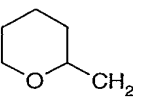
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A441	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A442	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A443	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A444	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A445	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A446	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A447	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A448	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A449	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A450	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A451	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A452	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A453	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A454	CH=CHCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A455	C≡CCH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	O	0
A456	C≡CCH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A457	C≡CCH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CH	H	CF <sub>3</sub>	O	0
A458	C≡CCH <sub>2</sub>	PhCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A459	C≡CCH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	S	0
A460	C≡CCH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO	0
A461	C≡CCH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO <sub>2</sub>	0
A462	C≡CCH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A463	C≡CCH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A464	C≡CCH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A465	C≡CCH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A466	C≡CCH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A467	C≡CCH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A468	C≡CCH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A469	C≡CCH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A470	C≡CCH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> C(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A471	C≡CCH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	0
A472	C≡CCH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	0
A473	C≡CCH <sub>2</sub>	HC≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A474	C≡CCH <sub>2</sub>	H <sub>2</sub> C=CHCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A475	C≡CCH <sub>2</sub>	CH <sub>3</sub> C≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A476	C≡CCH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
A477	C≡CCH <sub>2</sub>	 CH	H	CF <sub>3</sub>	O	0
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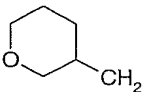
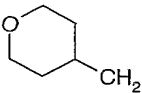
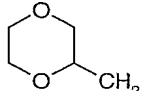
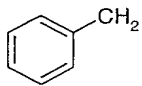
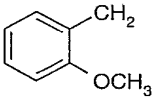
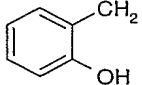
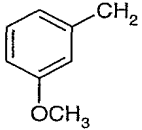
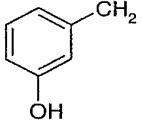
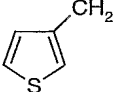
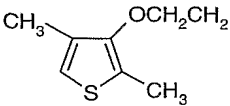
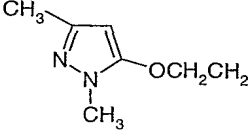
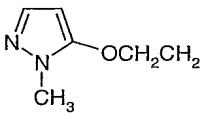
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A479	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A480	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A481	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A482	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A483	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A484	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A485	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A486	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A487	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A488	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A489	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A490	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A491	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A492	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0

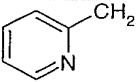
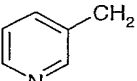
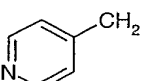
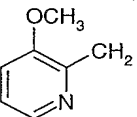
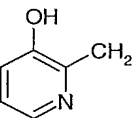
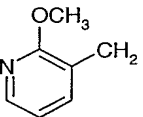
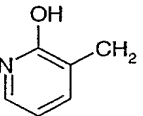
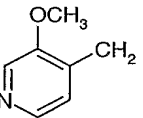
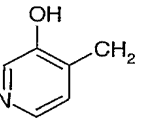
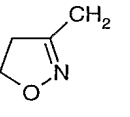
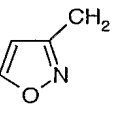
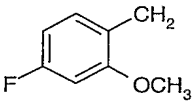
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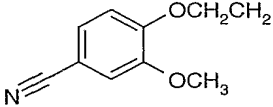
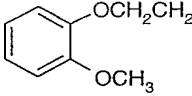
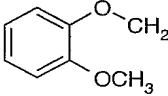


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A493	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A494	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A495	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A496	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A497	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A500	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A501	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A502	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A503	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A504	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A505	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A506	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A507	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A508	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A509	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A510	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A511	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A515	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A516	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A517	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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







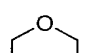
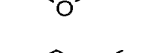
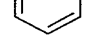
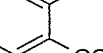
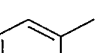
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
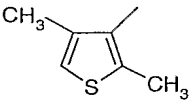
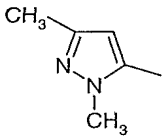
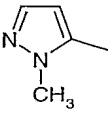
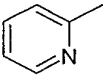
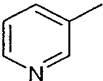
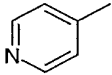
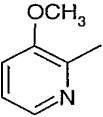
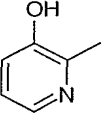
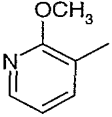
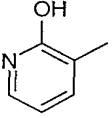
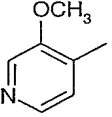
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A519	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A520	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A521	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A522	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A524	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A526	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A527	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A528	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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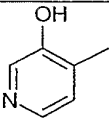
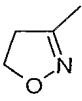
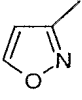
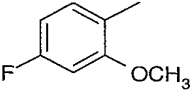
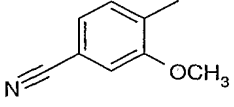
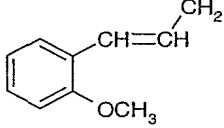
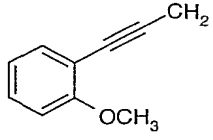
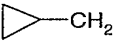
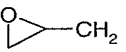
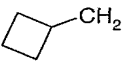
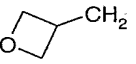
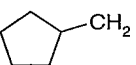
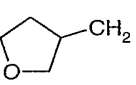
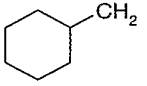
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A532	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A533	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A536	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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A541	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
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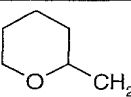
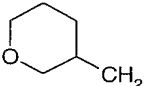
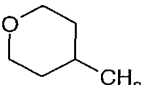
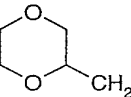
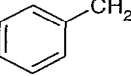
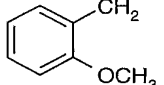
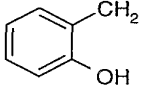
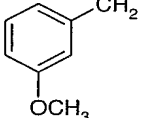
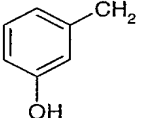
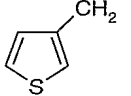
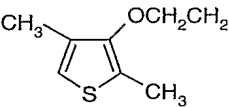
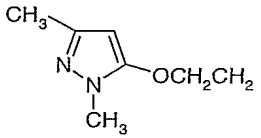
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A545	C≡CCH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A546	CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>2</sub> Cl	O	0
A547	CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub>	H	CF <sub>2</sub> Cl	O	0
A548	CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CH	H	CF <sub>2</sub> Cl	O	0
A549	CH <sub>2</sub>	PhCH <sub>2</sub>	H	CF <sub>2</sub> Cl	O	0
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A558	CH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub> CH <sub>2</sub>	H	CF <sub>2</sub> Cl	O	0
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A565	CH <sub>2</sub>	H <sub>2</sub> C=CHCH <sub>2</sub>	H	CF <sub>2</sub> Cl	O	0
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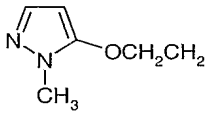
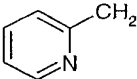
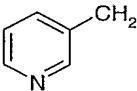
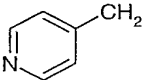
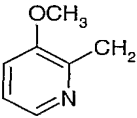
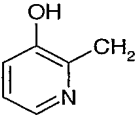
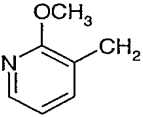
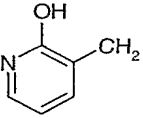
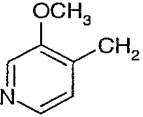
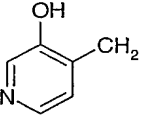
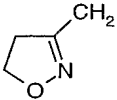
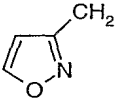
- 78 -

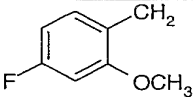
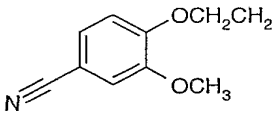
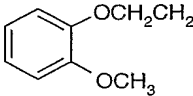
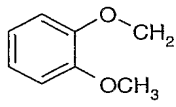

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A570	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A571	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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










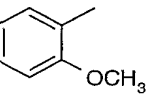
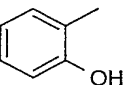
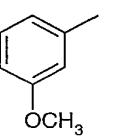
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
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A585	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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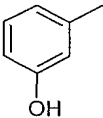

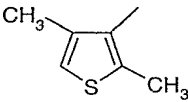
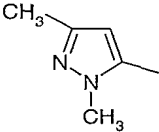
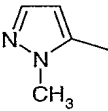


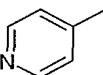
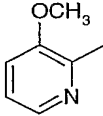
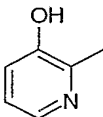
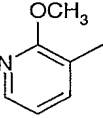
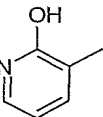
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A595	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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A597	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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A605	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A606	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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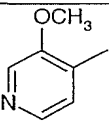
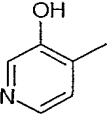


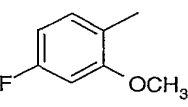
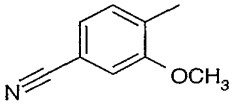
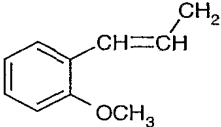
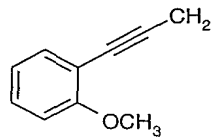
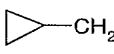
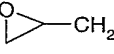
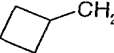
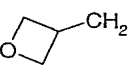
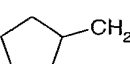
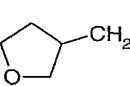
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A609	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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A611	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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A617	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A618	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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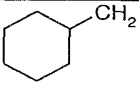
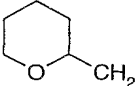
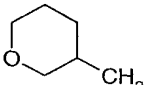
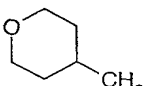
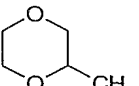
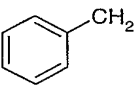
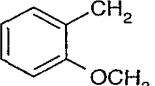
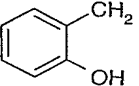
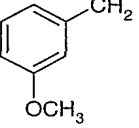
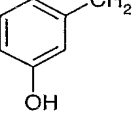
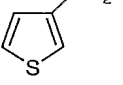
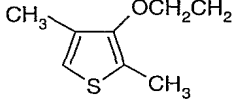
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A622	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A623	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A624	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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A626	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A627	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A628	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A629	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A630	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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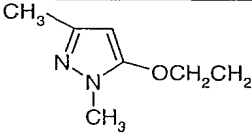
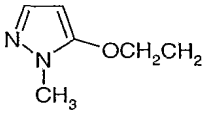
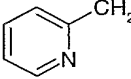
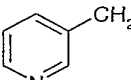
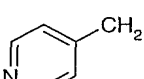
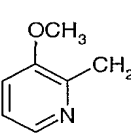
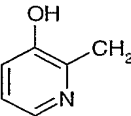
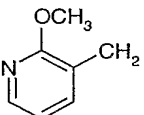
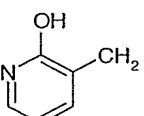
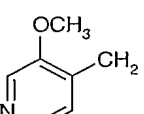
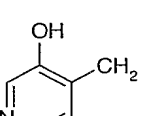
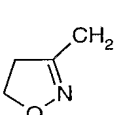
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A635	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
A636	CH <sub>2</sub>		H	CF <sub>2</sub> Cl	O	0
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A639	CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CH	H	CHF <sub>2</sub>	O	0
A640	CH <sub>2</sub>	PhCH <sub>2</sub>	H	CHF <sub>2</sub>	O	0
A641	CH <sub>2</sub>	CH <sub>3</sub>	H	CHF <sub>2</sub>	S	0
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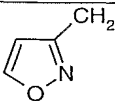
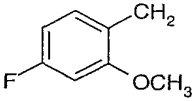
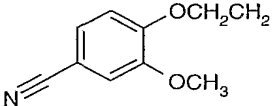
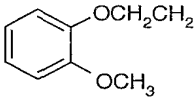
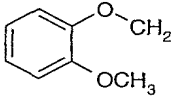
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A660	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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














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A672	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A673	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A674	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A675	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A676	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A677	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A678	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A679	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A680	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A681	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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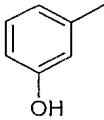

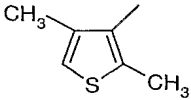
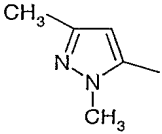
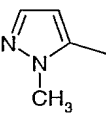
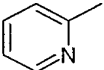
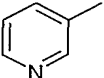
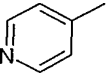
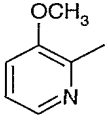
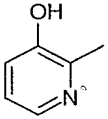
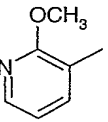
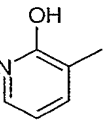
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A684	CH <sub>2</sub>		H	CHF <sub>2</sub>	SO <sub>2</sub>	0
A685	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A686	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A687	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A688	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A689	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A690	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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A692	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A693	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A694	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A695	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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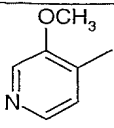
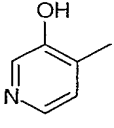
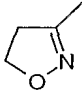
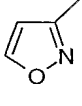
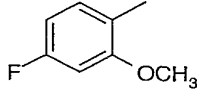
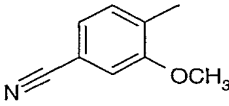
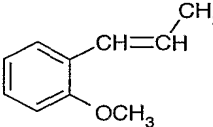
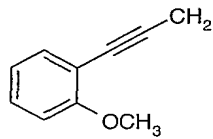
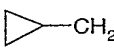
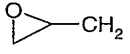
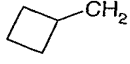
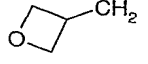
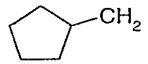
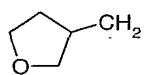
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A698	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A699	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A700	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A701	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A702	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A703	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A704	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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A706	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A707	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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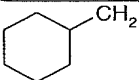
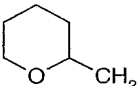
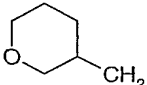
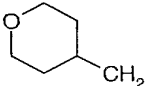
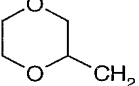
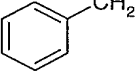
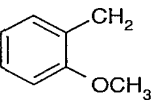
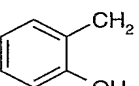
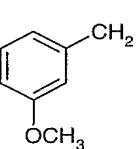
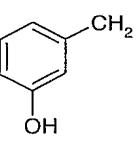
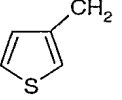
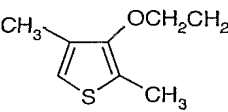
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A710	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A711	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A712	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A713	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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A715	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A716	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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A718	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A719	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
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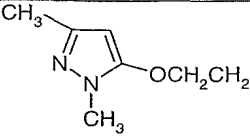
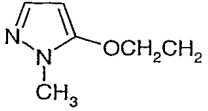
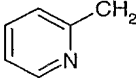
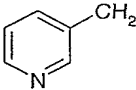
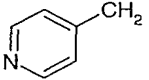
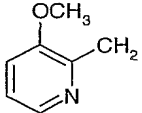
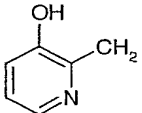
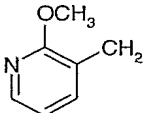
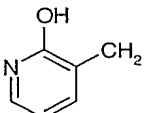
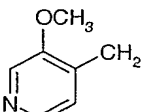
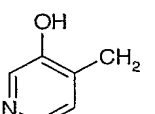
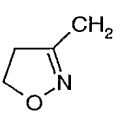
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A722	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A723	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A724	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A725	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A726	CH <sub>2</sub>		H	CHF <sub>2</sub>	O	0
A727	CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	O	1
A728	CH <sub>2</sub>	CH <sub>2</sub> CH <sub>3</sub>	H	CF <sub>3</sub>	O	1
A729	CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> CH	H	CF <sub>3</sub>	O	1
A730	CH <sub>2</sub>	PhCH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A731	CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	S	1
A732	CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO	1
A733	CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	SO <sub>2</sub>	1
A734	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A735	CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A736	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A737	CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A738	CH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A739	CH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )CH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A740	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	1
A741	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> C(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	1
A742	CH <sub>2</sub>	CH <sub>3</sub> OCH(CH <sub>3</sub> )	H	CF <sub>3</sub>	O	1
A743	CH <sub>2</sub>	CH <sub>3</sub> OC(CH <sub>3</sub> ) <sub>2</sub>	H	CF <sub>3</sub>	O	1
A744	CH <sub>2</sub>	HC≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A745	CH <sub>2</sub>	H <sub>2</sub> C=CHCH <sub>2</sub>	H	CF <sub>3</sub>	O	1
A746	CH <sub>2</sub>	CH <sub>3</sub> C≡CCH <sub>2</sub>	H	CF <sub>3</sub>	O	1

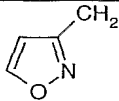
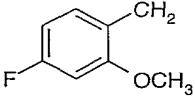
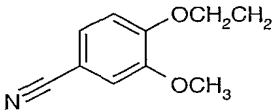
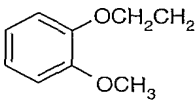
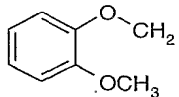
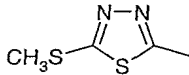
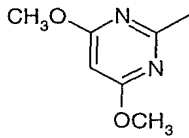
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A747	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A748	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A749	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A750	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A751	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A752	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A753	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A754	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A755	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A756	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A757	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A758	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A759	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A760	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A761	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1

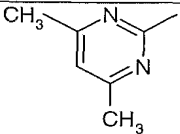


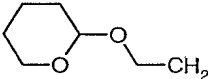
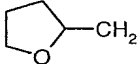
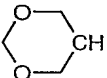
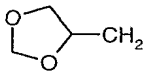
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A762	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A763	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A764	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A765	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A766	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A767	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A768	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A769	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A770	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A771	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A772	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A773	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1

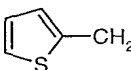
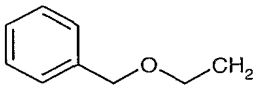
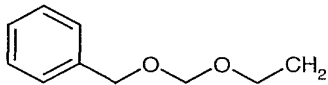
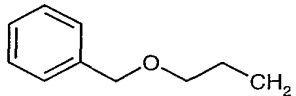
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A774	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A775	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A776	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A777	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A778	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A779	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A780	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A781	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A782	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A783	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A784	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A785	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A786	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A787	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A788	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A789	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A790	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A791	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A792	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A793	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A794	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A795	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A796	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A797	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A798	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A799	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1

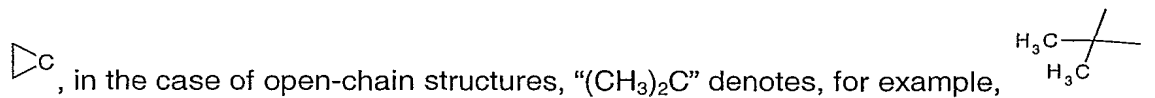
Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A800	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A801	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A802	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A803	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A804	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A805	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A806	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A807	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A808	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A809	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A810	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A811	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A812	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A813	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A814	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A815	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A816	CH <sub>2</sub>		H	CF <sub>3</sub>	O	1
A817	CH <sub>2</sub>	CH <sub>3</sub> SCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A818	CH <sub>2</sub>	CH <sub>3</sub> SOCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A819	CH <sub>2</sub>	CH <sub>3</sub> SO <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A820	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>2</sub> Cl	O	1
A821	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>2</sub> H	O	1
A822	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	F	CF <sub>3</sub>	O	0
A823	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub>	CF <sub>3</sub>	O	0
A824	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub>	CF <sub>3</sub>	O	1
A825	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	S	0
A826	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	SO	0
A827	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub>	CF <sub>3</sub>	SO <sub>2</sub>	0
A828	CH <sub>2</sub>	CH <sub>3</sub> SO <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub>	CH <sub>3</sub>	CF <sub>3</sub>	O	0
A829	CH <sub>2</sub>		H	CF <sub>3</sub>	S	0
A830	CH <sub>2</sub>		H	CF <sub>3</sub>	S	0

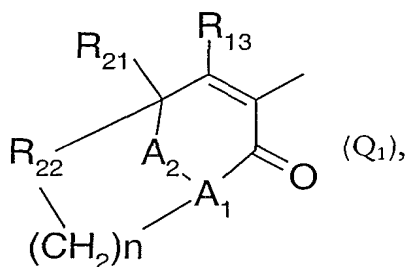
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A831	CH <sub>2</sub>		CH <sub>3</sub>	CF <sub>3</sub>	S	0
A832	CH <sub>2</sub>		CH <sub>3</sub>	CF <sub>3</sub>	S	0
A833	CH <sub>2</sub>	CH <sub>3</sub> C(O)	H	CF <sub>3</sub>	O	0
A834	CH <sub>2</sub>	CF <sub>3</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A835	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A836	CH <sub>2</sub>	HC≡CCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A837	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A838	CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> C(OCH <sub>3</sub> )HOCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A839	CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>3</sub> CC(O)	H	CF <sub>3</sub>	O	0
A840	CH <sub>2</sub>	CH <sub>2</sub> =CHCH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A841	CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A842	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A843	CH <sub>2</sub>	n-Heptyl-C(O)	H	CF <sub>3</sub>	O	0
A844	CH <sub>2</sub>	Phenyl-C(O)	H	CF <sub>3</sub>	O	0
A845	CH <sub>2</sub>	CF <sub>3</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A846	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A847	CH <sub>2</sub>	HOCH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A848	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A849	CH <sub>2</sub>	N≡CCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A850	CH <sub>2</sub>	ClCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A851	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A852	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A853	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> C(Br)HCH <sub>2</sub>	H	CF <sub>3</sub>	O	0

Radical	R <sub>1</sub>	R <sub>2</sub>	R <sub>4</sub>	R <sub>3</sub>	X <sub>1</sub>	p
A854	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A855	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A856	CH <sub>2</sub>	HOCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A857	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A858	CH <sub>2</sub>	CH <sub>3</sub> (OCH <sub>2</sub> CH <sub>2</sub> ) <sub>3</sub>	H	CF <sub>3</sub>	O	0
A859	CH <sub>2</sub>	CH <sub>3</sub> CH <sub>2</sub> OC(CH <sub>3</sub> )HOCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A860	CH <sub>2</sub>	n-Heptyl-C(O)OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A861	CH <sub>2</sub>	CH <sub>3</sub> C(O)OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A862	CH <sub>2</sub>	CH <sub>3</sub> SO <sub>2</sub> OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A863	CH <sub>2</sub>		H	CF <sub>3</sub>	O	0
A864	CH <sub>2</sub>	CH <sub>3</sub>	H	CF <sub>3</sub>	-NCH <sub>3</sub> SO <sub>2</sub> -	0
A865	CH <sub>2</sub>	HOCH <sub>2</sub> C(OH)HCH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A866	CH <sub>2</sub>	Phenyl-C(O)OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A867	CH <sub>2</sub>	t-Butyl-C(O)OCH <sub>2</sub> CH <sub>2</sub>	H	CF <sub>3</sub>	O	0
A868	CH <sub>2</sub>	CH <sub>3</sub> OC(O)CH <sub>2</sub>	H	CF <sub>3</sub>	O	0

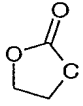






In the table below, in the case of rings, the ring attachment points for the substituents A<sub>1</sub> and A<sub>2</sub> are at the carbon atom which is marked "C", for example





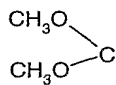

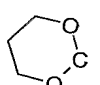


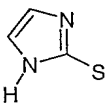
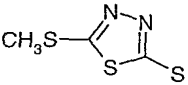
In the formula A-Q, Q denotes Q<sub>1</sub>

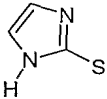
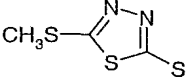
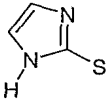


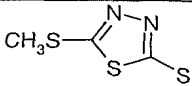
and Q<sub>1</sub> denotes the following radicals B:

Radical	A <sub>1</sub>	A <sub>2</sub>	n	R <sub>21</sub>	R <sub>22</sub>	R <sub>13</sub>
B1	CH <sub>2</sub>	CH <sub>2</sub>	0	H	H	OH
B2	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	H	OH
B3	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B4	(CH <sub>3</sub> )CH	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B5	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B6	CH	CH	0	CH <sub>3</sub>	-	OH
B7	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>2</sub> =CHCH <sub>2</sub>	OH
B8	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	HC≡CCH <sub>2</sub>	OH
B9	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub> S	OH
B10	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub> SO	OH
B11	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub> SO <sub>2</sub>	OH
B12	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub> O	OH
B13	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub> OC(O)	OH
B14	CH <sub>2</sub>	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub> CH <sub>2</sub> OC(O)	OH
B15	CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> C	0	H	H	OH
B16		CH <sub>2</sub>	0	H	H	OH
B17		CH <sub>2</sub>	0	H	H	OH
B18		CH <sub>2</sub>	0	CH <sub>3</sub>	H	OH
B19		CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B20		CH <sub>2</sub>	0	H	H	OH
B21		CH <sub>2</sub>	0	CH <sub>3</sub>	H	OH
B22		CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B23	(CH <sub>3</sub> ) <sub>2</sub> C	O	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B24	CH <sub>2</sub>	O	0	CH <sub>3</sub>	CH <sub>3</sub>	OH

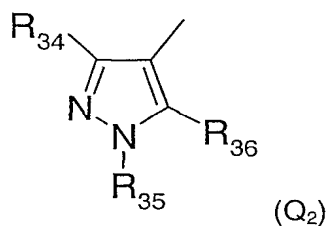
Radical	A <sub>1</sub>	A <sub>2</sub>	n	R <sub>21</sub>	R <sub>22</sub>	R <sub>13</sub>
B25	CH <sub>3</sub> N	O	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B26		O	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B27	CH <sub>3</sub> N	CH <sub>2</sub>	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B28	CH <sub>3</sub> N	(CH <sub>3</sub> )CH	0	H	H	OH
B29	CH <sub>3</sub> N	(CH <sub>3</sub> )CH	0	CH <sub>3</sub>	H	OH
B30	NH	(CH <sub>3</sub> )C	0	H	-	OH
B31	NH	CH	0	CH <sub>3</sub>	-	OH
B32	CH <sub>3</sub> N	(CH <sub>3</sub> )C	0	H	-	OH
B33	CH <sub>3</sub> N	CH	0	CH <sub>3</sub>	-	OH
B34	O	(CH <sub>3</sub> ) <sub>2</sub> C	0	H	-	OH
B35	O	(CH <sub>3</sub> ) <sub>2</sub> C	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B36	O	(CH <sub>3</sub> ) <sub>2</sub> C	0	CH <sub>3</sub>	H	OH
B37	O	(CH <sub>3</sub> )C	0	H	-	OH
B38	O	CH	0	CH <sub>3</sub>	-	OH
B39	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B40	(CH <sub>3</sub> ) <sub>2</sub> C	(OH)CH	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B41		C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B42		C=O	0	CH <sub>2</sub>	CH <sub>2</sub>	OH
B43	(CH <sub>3</sub> ) <sub>2</sub> C		0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B44	(CH <sub>3</sub> ) <sub>2</sub> C		0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B45	(CH <sub>3</sub> ) <sub>2</sub> C		0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B46	(CH <sub>3</sub> ) <sub>2</sub> C		0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B47	(CH <sub>3</sub> ) <sub>2</sub> C	HON=C	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B48	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>3</sub> ON=C	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B49	(CH <sub>3</sub> ) <sub>2</sub> C	BnON=C	0	CH <sub>3</sub>	CH <sub>3</sub>	OH
B50	CH	O	1	H	CH <sub>2</sub>	OH
B51	CH	C=O	1	H	CH <sub>2</sub>	OH

Radical	A <sub>1</sub>	A <sub>2</sub>	n	R <sub>21</sub>	R <sub>22</sub>	R <sub>13</sub>
B52	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	OH
B53	CH	CH <sub>3</sub> N	1	H	CH <sub>2</sub>	OH
B54	CH	CH <sub>2</sub> CH <sub>2</sub>	1	H	CH <sub>2</sub>	OH
B55	CH	C=O	2	H	CH <sub>2</sub>	OH
B56	CH	CH <sub>2</sub>	2	H	CH <sub>2</sub>	OH
B57	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	Cl
B58	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	NH <sub>2</sub>
B59	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	CH <sub>3</sub> SO <sub>2</sub> NH
B60	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> S
B61	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> SO
B62	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> SO <sub>2</sub>
B63	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> NC(O)NH
B64	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	PhC(O)O
B65	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	CH <sub>3</sub> OC(O)O
B66	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> S
B67	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> SO
B68	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> SO <sub>2</sub>
B69	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	(CH <sub>3</sub> ) <sub>2</sub> NSO <sub>2</sub> NH
B70	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	PhS
B71	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	PhSO
B72	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	PhSO <sub>2</sub>
B73	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	
B74	CH	CH <sub>2</sub>	1	H	CH <sub>2</sub>	
B75	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	Cl
B76	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	NH <sub>2</sub>
B77	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	CH <sub>3</sub> SO <sub>2</sub> NH
B78	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> S
B79	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> SO
B80	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> SO <sub>2</sub>
B81	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	(CH <sub>3</sub> ) <sub>2</sub> NC(O)NH


Radical	A <sub>1</sub>	A <sub>2</sub>	n	R <sub>21</sub>	R <sub>22</sub>	R <sub>13</sub>
B82	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	PhC(O)O
B83	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	CH <sub>3</sub> OC(O)O
B84	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> S
B85	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> SO
B86	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> SO <sub>2</sub>
B87	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	(CH <sub>3</sub> ) <sub>2</sub> NSO <sub>2</sub> NH
B88	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	PhS
B89	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	PhSO
B90	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	PhSO <sub>2</sub>
B91	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	
B92	(CH <sub>3</sub> ) <sub>2</sub> C	C=O	0	CH <sub>3</sub>	CH <sub>3</sub>	
B93	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	Cl
B94	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	NH <sub>2</sub>
B96	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> S
B97	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> SO
B98	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> SO <sub>2</sub>
B99	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	(CH <sub>3</sub> ) <sub>2</sub> NC(O)NH
B100	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	PhC(O)O
B101	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	CH <sub>3</sub> OC(O)O
B102	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> S
B103	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> SO
B104	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> SO <sub>2</sub>
B105	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	(CH <sub>3</sub> ) <sub>2</sub> NSO <sub>2</sub> NH
B106	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	PhS
B107	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	PhSO
B108	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	PhSO <sub>2</sub>
B109	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	

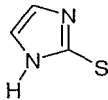
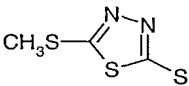
Radical	A <sub>1</sub>	A <sub>2</sub>	n	R <sub>21</sub>	R <sub>22</sub>	R <sub>13</sub>
B110	(CH <sub>3</sub> ) <sub>2</sub> C	CH <sub>2</sub>	0	H	H	
B111	CH <sub>2</sub>	(CH <sub>3</sub> )CH	0	H	H	OH
B112	CH <sub>2</sub>	CH <sub>2</sub>	1	H	CH <sub>2</sub>	t-Butyl-C(O)O
B113	CH <sub>2</sub>	CH <sub>2</sub>	1	H	CH <sub>2</sub>	t-Heptyl-C(O)O

or Q in the formula A-Q denotes Q<sub>2</sub>

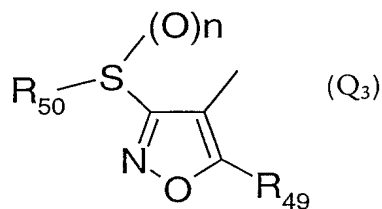


and Q<sub>2</sub> denotes the following radicals C:


Radical	R <sub>34</sub>	R <sub>35</sub>	R <sub>36</sub>
C1	CH <sub>3</sub>	H	OH
C2	CH <sub>3</sub>	CH <sub>3</sub>	OH
C3	H	HC≡CCH <sub>2</sub>	OH
C4	H	CH <sub>3</sub> SO <sub>2</sub>	OH
C5	H	CH <sub>3</sub>	OH
C6	H	PhCH <sub>2</sub>	OH
C7	CF <sub>3</sub>	CH <sub>3</sub>	OH
C8		CH <sub>3</sub>	OH
C9	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub>	CH <sub>3</sub>	OH
C10	H	CH <sub>3</sub>	Cl
C11	H	CH <sub>3</sub>	NH <sub>2</sub>
C12	H	CH <sub>3</sub>	CH <sub>3</sub> SO <sub>2</sub> NH
C13	H	CH <sub>3</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> S
C14	H	CH <sub>3</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> SO
C15	H	CH <sub>3</sub>	CH <sub>3</sub> OCH <sub>2</sub> CH <sub>2</sub> SO <sub>2</sub>

Radical	R <sub>34</sub>	R <sub>35</sub>	R <sub>36</sub>
C16	H	CH <sub>3</sub>	(CH <sub>3</sub> ) <sub>2</sub> NC(O)NH
C17	H	CH <sub>3</sub>	PhC(O)O
C18	H	CH <sub>3</sub>	CH <sub>3</sub> OC(O)O
C19	H	CH <sub>3</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> S
C20	H	CH <sub>3</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> SO
C21	H	CH <sub>3</sub>	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> SO <sub>2</sub>
C22	H	CH <sub>3</sub>	(CH <sub>3</sub> ) <sub>2</sub> NSO <sub>2</sub> NH
C23	H	CH <sub>3</sub>	PhS
C24	H	CH <sub>3</sub>	PhSO
C25	H	CH <sub>3</sub>	PhSO <sub>2</sub>
C26	H	CH <sub>3</sub>	
C27	H	CH <sub>3</sub>	
C28	H	CH <sub>3</sub>	CH <sub>3</sub> SO <sub>2</sub> O
C29	H	CH <sub>3</sub>	p-TolylSO <sub>2</sub> O

or Q in the formula A-Q denotes Q<sub>3</sub>



and Q<sub>3</sub> denotes the following radicals D (the point of attachment of R<sub>49</sub> to the heterocycle is the "CH" group):

Radical	R <sub>49</sub>	R <sub>50</sub>	n
D1		CH <sub>3</sub>	0












Radical	R <sub>49</sub>	R <sub>50</sub>	n
D2		CH <sub>3</sub>	1
D3		CH <sub>3</sub>	2
D4		CF <sub>3</sub>	0
D5		CF <sub>3</sub>	1
D6		CF <sub>3</sub>	2
D7		Ph	0
D8		Ph	1
D9		Ph	2
D10		PhCH <sub>2</sub>	0
D11		PhCH <sub>2</sub>	1
D12		PhCH <sub>2</sub>	2

Table 1: Intermediates for preparing the compounds of the formula I, represented as formula

### A-Q

in which Q denotes hydroxyl:

<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>
-	-	-	-	-	-	-	A8	A9	A10	A11	A12
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
A49	A50	A51	A52	A53	A54	A55	A56	A57	A58	A59	A60
A61	A62	A63	A64	A65	A66	A67	A68	A69	A70	A71	A72
A73	A74	A75	A76	A77	A78	A79	A80	A81	A82	A83	A84

<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>
A85	A86	A87	A88	A89	A90	-	-	-	-	-	-
-	-	A99	A100	A101	A102	A103	A104	A105	A106	A107	A108
A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120
A121	A122	A123	A124	A125	A126	A127	A128	A129	A130	A131	A132
A133	A134	A135	A136	A137	A138	A139	A140	A141	A142	A143	A144
A145	A146	A147	A148	A149	A150	A151	A152	A153	A154	A155	A156
A157	A158	A159	A160	A161	A162	A163	A164	A165	A166	A167	A168
A169	A170	A171	A172	A173	A174	A175	A176	A177	A178	A179	A180
A181	A182	A183	A184	A185	A186	A187	A188	A189	A190	A191	A192
A193	A194	A195	A196	A197	A198	A199	A200	A201	A202	A203	A204
A205	A206	A207	A208	A209	A210	A211	A212	A213	A214	A215	A216
A217	A218	A219	A220	A221	A222	A223	A224	A225	A226	A227	A228
A229	A230	A231	A232	A233	A234	A235	A236	A237	A238	A239	A240
A241	A242	A243	A244	A245	A246	A247	A248	A249	A250	A251	A252
A253	A254	A255	A256	A257	A258	A259	A260	A261	A262	A263	A264
A265	A266	A267	A268	A269	A270	A271	A272	A273	A274	A275	A276
A277	A278	A279	A280	A281	A282	A283	A284	A285	A286	A287	A288
A289	A290	A291	A292	A293	A294	A295	A296	A297	A298	A299	A300
A301	A302	A303	A304	A305	A306	A307	A308	A309	A310	A311	A312
A313	A314	A315	A316	A317	A318	A319	A320	A321	A322	A323	A324
A325	A326	A327	A328	A329	A330	A331	A332	A333	A334	A335	A336
A337	A338	A339	A340	A341	A342	A343	A344	A345	A346	A347	A348
A349	A350	A351	A352	A353	A354	A355	A356	A357	A358	A359	A360
A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372
A373	A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384
A385	A386	A387	A388	A389	A390	A391	A392	A393	A394	A395	A396
A397	A398	A399	A400	A401	A402	A403	A404	A405	A406	A407	A408
A409	A410	A411	A412	A413	A414	A415	A416	A417	A418	A419	A420
A421	A422	A423	A424	A425	A426	A427	A428	A429	A430	A431	A432
A433	A434	A435	A436	A437	A438	A439	A440	A441	A442	A443	A444
A445	A446	A447	A448	A449	A450	A451	A452	A453	A454	A455	A456
A457	A458	A459	A460	A461	A462	A463	A464	A465	A466	A467	A468
A469	A470	A471	A472	A473	A474	A475	A476	A477	A478	A479	A480

<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>	<u>OH</u>
A481	A482	A483	A484	A485	A486	A487	A488	A489	A490	A491	A492
A493	A494	A495	A496	A497	A498	A499	A500	A501	A502	A503	A504
A505	A506	A507	A508	A509	A510	A511	A512	A513	A514	A515	A516
A517	A518	A519	A520	A521	A522	A523	A524	A525	A526	A527	A528
A529	A530	A531	A532	A533	A534	A535	A536	A537	A538	A539	A540
A541	A542	A543	A544	A545	-	-	-	-	-	-	-
-	A554	A555	A556	A557	A558	A559	A560	A561	A562	A563	A564
A565	A566	A567	A568	A569	A570	A571	A572	A573	A574	A575	A576
A577	A578	A579	A580	A581	A582	A583	A584	A585	A586	A587	A588
A589	A590	A591	A592	A593	A594	A595	A596	A597	A598	A599	A600
A601	A602	A603	A604	A605	A606	A607	A608	A609	A610	A611	A612
A613	A614	A615	A616	A617	A618	A619	A620	A621	A622	A623	A624
A625	A626	A627	A628	A629	A630	A631	A632	A633	A634	A635	A636
-	-	-	-	-	-	-	A644	A645	A646	A647	A648
A649	A650	A651	A652	A653	A654	A655	A656	A657	A658	A659	A660
A661	A662	A663	A664	A665	A666	A667	A668	A669	A670	A671	A672
A685	A686	A687	A688	A689	A690	A691	A692	A693	A694	A695	A696
A697	A698	A699	A700	A701	A702	A703	A704	A705	A706	A707	A708
A709	A710	A711	A712	A713	A714	A715	A716	A717	A718	A719	A720
A721	A722	A723	A724	A725	A726	-	-	-	-	-	-
A733	A734	A735	A736	A737	A738	A739	A740	A741	A742	A743	A744
A745	A746	A747	A748	A749	A750	A751	A752	A753	A754	A755	A756
A757	A758	A759	A760	A761	A762	A763	A764	A765	A766	A767	A768
A769	A770	A771	A772	A773	A774	A775	A776	A777	A778	A779	A780
A781	A782	A783	A784	A785	A786	A787	A788	A789	A790	A791	A792
A793	A794	A795	A796	A797	A798	A799	A800	A801	A802	A803	A804
A805	A806	A807	A808	A809	A810	A811	A812	A813	A814	A815	A816
A817	A818	A819	A820	A821	A822	A823	A824	A825	A826	A827	A828
A829	A830	A831	A832	-	-	-	-	-	-	-	-

Table 2: Compounds of the formula I, represented as compounds of the formula

**A-Q**

in which Q denotes  $Q_1$  and  $Q_1$  denotes the radical B52:

<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
A49	A50	A51	A52	A53	A54	A55	A56	A57	A58	A59	A60
A61	A62	A63	A64	A65	A66	A67	A68	A69	A70	A71	A72
A73	A74	A75	A76	A77	A78	A79	A80	A81	A82	A83	A84
A85	A86	A87	A88	A89	A90	A91	A92	A93	A94	A95	A96
A97	A98	A99	A100	A101	A102	A103	A104	A105	A106	A107	A108
A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120
A121	A122	A123	A124	A125	A126	A127	A128	A129	A130	A131	A132
A133	A134	A135	A136	A137	A138	A139	A140	A141	A142	A143	A144
A145	A146	A147	A148	A149	A150	A151	A152	A153	A154	A155	A156
A157	A158	A159	A160	A161	A162	A163	A164	A165	A166	A167	A168
A169	A170	A171	A172	A173	A174	A175	A176	A177	A178	A179	A180
A181	A182	A183	A184	A185	A186	A187	A188	A189	A190	A191	A192
A193	A194	A195	A196	A197	A198	A199	A200	A201	A202	A203	A204
A205	A206	A207	A208	A209	A210	A211	A212	A213	A214	A215	A216
A217	A218	A219	A220	A221	A222	A223	A224	A225	A226	A227	A228
A229	A230	A231	A232	A233	A234	A235	A236	A237	A238	A239	A240
A241	A242	A243	A244	A245	A246	A247	A248	A249	A250	A251	A252
A253	A254	A255	A256	A257	A258	A259	A260	A261	A262	A263	A264
A265	A266	A267	A268	A269	A270	A271	A272	A273	A274	A275	A276
A277	A278	A279	A280	A281	A282	A283	A284	A285	A286	A287	A288
A289	A290	A291	A292	A293	A294	A295	A296	A297	A298	A299	A300
A301	A302	A303	A304	A305	A306	A307	A308	A309	A310	A311	A312
A313	A314	A315	A316	A317	A318	A319	A320	A321	A322	A323	A324

<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>
A325	A326	A327	A328	A329	A330	A331	A332	A333	A334	A335	A336
A337	A338	A339	A340	A341	A342	A343	A344	A345	A346	A347	A348
A349	A350	A351	A352	A353	A354	A355	A356	A357	A358	A359	A360
A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372
A373	A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384
A385	A386	A387	A388	A389	A390	A391	A392	A393	A394	A395	A396
A397	A398	A399	A400	A401	A402	A403	A404	A405	A406	A407	A408
A409	A410	A411	A412	A413	A414	A415	A416	A417	A418	A419	A420
A421	A422	A423	A424	A425	A426	A427	A428	A429	A430	A431	A432
A433	A434	A435	A436	A437	A438	A439	A440	A441	A442	A443	A444
A445	A446	A447	A448	A449	A450	A451	A452	A453	A454	A455	A456
A457	A458	A459	A460	A461	A462	A463	A464	A465	A466	A467	A468
A469	A470	A471	A472	A473	A474	A475	A476	A477	A478	A479	A480
A481	A482	A483	A484	A485	A486	A487	A488	A489	A490	A491	A492
A493	A494	A495	A496	A497	A498	A499	A500	A501	A502	A503	A504
A505	A506	A507	A508	A509	A510	A511	A512	A513	A514	A515	A516
A517	A518	A519	A520	A521	A522	A523	A524	A525	A526	A527	A528
A529	A530	A531	A532	A533	A534	A535	A536	A537	A538	A539	A540
A541	A542	A543	A544	A545	A546	A547	A548	A549	A550	A551	A552
A553	A554	A555	A556	A557	A558	A559	A560	A561	A562	A563	A564
A565	A566	A567	A568	A569	A570	A571	A572	A573	A574	A575	A576
A577	A578	A579	A580	A581	A582	A583	A584	A585	A586	A587	A588
A589	A590	A591	A592	A593	A594	A595	A596	A597	A598	A599	A600
A601	A602	A603	A604	A605	A606	A607	A608	A609	A610	A611	A612
A613	A614	A615	A616	A617	A618	A619	A620	A621	A622	A623	A624
A625	A626	A627	A628	A629	A630	A631	A632	A633	A634	A635	A636
A637	A638	A639	A640	A641	A642	A643	A644	A645	A646	A647	A648
A649	A650	A651	A652	A653	A654	A655	A656	A657	A658	A659	A660
A661	A662	A663	A664	A665	A666	A667	A668	A669	A670	A671	A672
A673	A674	A675	A676	A677	A678	A679	A680	A681	A682	A683	A684
A685	A686	A687	A688	A689	A690	A691	A692	A693	A694	A695	A696
A697	A698	A699	A700	A701	A702	A703	A704	A705	A706	A707	A708
A709	A710	A711	A712	A713	A714	A715	A716	A717	A718	A719	A720

<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>	<u>B52</u>
A721	A722	A723	A724	A725	A726	A727	A728	A729	A730	A731	A732
A733	A734	A735	A736	A737	A738	A739	A740	A741	A742	A743	A744
A745	A746	A747	A748	A749	A750	A751	A752	A753	A754	A755	A756
A757	A758	A759	A760	A761	A762	A763	A764	A765	A766	A767	A768
A769	A770	A771	A772	A773	A774	A775	A776	A777	A778	A779	A780
A781	A782	A783	A784	A785	A786	A787	A788	A789	A790	A791	A792
A793	A794	A795	A796	A797	A798	A799	A800	A801	A802	A803	A804
A805	A806	A807	A808	A809	A810	A811	A812	A813	A814	A815	A816
A817	A818	A819	A820	A821	A822	A823	A824	A825	A826	A827	A828
A829	A830	A831	A832	-	-	-	-	-	-	-	-

Table 3: Compounds of the formula I, represented as compounds of the formula

**A-Q**

in which Q denotes Q<sub>1</sub> and Q<sub>1</sub> denotes the radical B39:

<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
A49	A50	A51	A52	A53	A54	A55	A56	A57	A58	A59	A60
A61	A62	A63	A64	A65	A66	A67	A68	A69	A70	A71	A72
A73	A74	A75	A76	A77	A78	A79	A80	A81	A82	A83	A84
A85	A86	A87	A88	A89	A90	A91	A92	A93	A94	A95	A96
A97	A98	A99	A100	A101	A102	A103	A104	A105	A106	A107	A108
A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120
A121	A122	A123	A124	A125	A126	A127	A128	A129	A130	A131	A132
A133	A134	A135	A136	A137	A138	A139	A140	A141	A142	A143	A144
A145	A146	A147	A148	A149	A150	A151	A152	A153	A154	A155	A156

<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>
A157	A158	A159	A160	A161	A162	A163	A164	A165	A166	A167	A168
A169	A170	A171	A172	A173	A174	A175	A176	A177	A178	A179	A180
A181	A182	A183	A184	A185	A186	A187	A188	A189	A190	A191	A192
A193	A194	A195	A196	A197	A198	A199	A200	A201	A202	A203	A204
A205	A206	A207	A208	A209	A210	A211	A212	A213	A214	A215	A216
A217	A218	A219	A220	A221	A222	A223	A224	A225	A226	A227	A228
A229	A230	A231	A232	A233	A234	A235	A236	A237	A238	A239	A240
A241	A242	A243	A244	A245	A246	A247	A248	A249	A250	A251	A252
A253	A254	A255	A256	A257	A258	A259	A260	A261	A262	A263	A264
A265	A266	A267	A268	A269	A270	A271	A272	A273	A274	A275	A276
A277	A278	A279	A280	A281	A282	A283	A284	A285	A286	A287	A288
A289	A290	A291	A292	A293	A294	A295	A296	A297	A298	A299	A300
A301	A302	A303	A304	A305	A306	A307	A308	A309	A310	A311	A312
A313	A314	A315	A316	A317	A318	A319	A320	A321	A322	A323	A324
A325	A326	A327	A328	A329	A330	A331	A332	A333	A334	A335	A336
A337	A338	A339	A340	A341	A342	A343	A344	A345	A346	A347	A348
A349	A350	A351	A352	A353	A354	A355	A356	A357	A358	A359	A360
A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372
A373	A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384
A385	A386	A387	A388	A389	A390	A391	A392	A393	A394	A395	A396
A397	A398	A399	A400	A401	A402	A403	A404	A405	A406	A407	A408
A409	A410	A411	A412	A413	A414	A415	A416	A417	A418	A419	A420
A421	A422	A423	A424	A425	A426	A427	A428	A429	A430	A431	A432
A433	A434	A435	A436	A437	A438	A439	A440	A441	A442	A443	A444
A445	A446	A447	A448	A449	A450	A451	A452	A453	A454	A455	A456
A457	A458	A459	A460	A461	A462	A463	A464	A465	A466	A467	A468
A469	A470	A471	A472	A473	A474	A475	A476	A477	A478	A479	A480
A481	A482	A483	A484	A485	A486	A487	A488	A489	A490	A491	A492
A493	A494	A495	A496	A497	A498	A499	A500	A501	A502	A503	A504
A505	A506	A507	A508	A509	A510	A511	A512	A513	A514	A515	A516
A517	A518	A519	A520	A521	A522	A523	A524	A525	A526	A527	A528
A529	A530	A531	A532	A533	A534	A535	A536	A537	A538	A539	A540
A541	A542	A543	A544	A545	A546	A547	A548	A549	A550	A551	A552

<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>	<u>B39</u>
A553	A554	A555	A556	A557	A558	A559	A560	A561	A562	A563	A564
A565	A566	A567	A568	A569	A570	A571	A572	A573	A574	A575	A576
A577	A578	A579	A580	A581	A582	A583	A584	A585	A586	A587	A588
A589	A590	A591	A592	A593	A594	A595	A596	A597	A598	A599	A600
A601	A602	A603	A604	A605	A606	A607	A608	A609	A610	A611	A612
A613	A614	A615	A616	A617	A618	A619	A620	A621	A622	A623	A624
A625	A626	A627	A628	A629	A630	A631	A632	A633	A634	A635	A636
A637	A638	A639	A640	A641	A642	A643	A644	A645	A646	A647	A648
A649	A650	A651	A652	A653	A654	A655	A656	A657	A658	A659	A660
A661	A662	A663	A664	A665	A666	A667	A668	A669	A670	A671	A672
A673	A674	A675	A676	A677	A678	A679	A680	A681	A682	A683	A684
A685	A686	A687	A688	A689	A690	A691	A692	A693	A694	A695	A696
A697	A698	A699	A700	A701	A702	A703	A704	A705	A706	A707	A708
A709	A710	A711	A712	A713	A714	A715	A716	A717	A718	A719	A720
A721	A722	A723	A724	A725	A726	A727	A728	A729	A730	A731	A732
A733	A734	A735	A736	A737	A738	A739	A740	A741	A742	A743	A744
A745	A746	A747	A748	A749	A750	A751	A752	A753	A754	A755	A756
A757	A758	A759	A760	A761	A762	A763	A764	A765	A766	A767	A768
A769	A770	A771	A772	A773	A774	A775	A776	A777	A778	A779	A780
A781	A782	A783	A784	A785	A786	A787	A788	A789	A790	A791	A792
A793	A794	A795	A796	A797	A798	A799	A800	A801	A802	A803	A804
A805	A806	A807	A808	A809	A810	A811	A812	A813	A814	A815	A816
A817	A818	A819	A820	A821	A822	A823	A824	A825	A826	A827	A828
A829	A830	A831	A832	-	-	-	-	-	-	-	-

Table 4: Compounds of the formula I, represented as compounds of the formula

## A-Q

in which  $Q$  denotes  $Q_1$  and  $Q_1$  denotes the radical B3:

[illegible]

<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>
-	-	-	-	-	-	-	A8	A9	A10	A11	A12
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
A49	A50	A51	A52	A53	A54	A55	A56	A57	A58	A59	A60
A61	A62	A63	A64	A65	A66	A67	A68	A69	A70	A71	A72
A73	A74	A75	A76	A77	A78	A79	A80	A81	A82	A83	A84
A85	A86	A87	A88	A89	A90	-	-	-	-	-	-
-	-	A99	A100	A101	A102	A103	A104	A105	A106	A107	A108
A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120
A121	A122	A123	A124	A125	A126	A127	A128	A129	A130	A131	A132
A133	A134	A135	A136	A137	A138	A139	A140	A141	A142	A143	A144
A145	A146	A147	A148	A149	A150	A151	A152	A153	A154	A155	A156
A157	A158	A159	A160	A161	A162	A163	A164	A165	A166	A167	A168
A169	A170	A171	A172	A173	A174	A175	A176	A177	A178	A179	A180
A181	A182	A183	A184	A185	A186	A187	A188	A189	A190	A191	A192
A193	A194	A195	A196	A197	A198	A199	A200	A201	A202	A203	A204
A205	A206	A207	A208	A209	A210	A211	A212	A213	A214	A215	A216
A217	A218	A219	A220	A221	A222	A223	A224	A225	A226	A227	A228
A229	A230	A231	A232	A233	A234	A235	A236	A237	A238	A239	A240
A241	A242	A243	A244	A245	A246	A247	A248	A249	A250	A251	A252
A253	A254	A255	A256	A257	A258	A259	A260	A261	A262	A263	A264
A265	A266	A267	A268	A269	A270	A271	A272	A273	A274	A275	A276
A277	A278	A279	A280	A281	A282	A283	A284	A285	A286	A287	A288
A289	A290	A291	A292	A293	A294	A295	A296	A297	A298	A299	A300
A301	A302	A303	A304	A305	A306	A307	A308	A309	A310	A311	A312
A313	A314	A315	A316	A317	A318	A319	A320	A321	A322	A323	A324
A325	A326	A327	A328	A329	A330	A331	A332	A333	A334	A335	A336
A337	A338	A339	A340	A341	A342	A343	A344	A345	A346	A347	A348
A349	A350	A351	A352	A353	A354	A355	A356	A357	A358	A359	A360
A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372
A373	A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384

<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>
A385	A386	A387	A388	A389	A390	A391	A392	A393	A394	A395	A396
A397	A398	A399	A400	A401	A402	A403	A404	A405	A406	A407	A408
A409	A410	A411	A412	A413	A414	A415	A416	A417	A418	A419	A420
A421	A422	A423	A424	A425	A426	A427	A428	A429	A430	A431	A432
A433	A434	A435	A436	A437	A438	A439	A440	A441	A442	A443	A444
A445	A446	A447	A448	A449	A450	A451	A452	A453	A454	A455	A456
A457	A458	A459	A460	A461	A462	A463	A464	A465	A466	A467	A468
A469	A470	A471	A472	A473	A474	A475	A476	A477	A478	A479	A480
A481	A482	A483	A484	A485	A486	A487	A488	A489	A490	A491	A492
A493	A494	A495	A496	A497	A498	A499	A500	A501	A502	A503	A504
A505	A506	A507	A508	A509	A510	A511	A512	A513	A514	A515	A516
A517	A518	A519	A520	A521	A522	A523	A524	A525	A526	A527	A528
A529	A530	A531	A532	A533	A534	A535	A536	A537	A538	A539	A540
A541	A542	A543	A544	A545	-	-	-	-	-	-	-
-	A554	A555	A556	A557	A558	A559	A560	A561	A562	A563	A564
A565	A566	A567	A568	A569	A570	A571	A572	A573	A574	A575	A576
A577	A578	A579	A580	A581	A582	A583	A584	A585	A586	A587	A588
A589	A590	A591	A592	A593	A594	A595	A596	A597	A598	A599	A600
A601	A602	A603	A604	A605	A606	A607	A608	A609	A610	A611	A612
A613	A614	A615	A616	A617	A618	A619	A620	A621	A622	A623	A624
A625	A626	A627	A628	A629	A630	A631	A632	A633	A634	A635	A636
-	-	-	-	-	-	-	A644	A645	A646	A647	A648
A649	A650	A651	A652	A653	A654	A655	A656	A657	A658	A659	A660
A661	A662	A663	A664	A665	A666	A667	A668	A669	A670	A671	A672
A685	A686	A687	A688	A689	A690	A691	A692	A693	A694	A695	A696
A697	A698	A699	A700	A701	A702	A703	A704	A705	A706	A707	A708
A709	A710	A711	A712	A713	A714	A715	A716	A717	A718	A719	A720
A721	A722	A723	A724	A725	A726	-	-	-	-	-	-
A733	A734	A735	A736	A737	A738	A739	A740	A741	A742	A743	A744
A745	A746	A747	A748	A749	A750	A751	A752	A753	A754	A755	A756
A757	A758	A759	A760	A761	A762	A763	A764	A765	A766	A767	A768
A769	A770	A771	A772	A773	A774	A775	A776	A777	A778	A779	A780
A781	A782	A783	A784	A785	A786	A787	A788	A789	A790	A791	A792

<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>	<u>B3</u>
A793	A794	A795	A796	A797	A798	A799	A800	A801	A802	A803	A804
A805	A806	A807	A808	A809	A810	A811	A812	A813	A814	A815	A816
A817	A818	A819	A820	A821	A822	A823	A824	A825	A826	A827	A828
A829	A830	A831	A832	-	-	-	-	-	-	-	-

Table 5: Compounds of the formula I, represented as compounds of the formula

**A-Q**

in which Q denotes Q<sub>2</sub> and Q<sub>2</sub> denotes the radical C5:

<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
A49	A50	A51	A52	A53	A54	A55	A56	A57	A58	A59	A60
A61	A62	A63	A64	A65	A66	A67	A68	A69	A70	A71	A72
A73	A74	A75	A76	A77	A78	A79	A80	A81	A82	A83	A84
A85	A86	A87	A88	A89	A90	A91	A92	A93	A94	A95	A96
A97	A98	A99	A100	A101	A102	A103	A104	A105	A106	A107	A108
A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120
A121	A122	A123	A124	A125	A126	A127	A128	A129	A130	A131	A132
A133	A134	A135	A136	A137	A138	A139	A140	A141	A142	A143	A144
A145	A146	A147	A148	A149	A150	A151	A152	A153	A154	A155	A156
A157	A158	A159	A160	A161	A162	A163	A164	A165	A166	A167	A168
A169	A170	A171	A172	A173	A174	A175	A176	A177	A178	A179	A180
A181	A182	A183	A184	A185	A186	A187	A188	A189	A190	A191	A192
A193	A194	A195	A196	A197	A198	A199	A200	A201	A202	A203	A204
A205	A206	A207	A208	A209	A210	A211	A212	A213	A214	A215	A216
A217	A218	A219	A220	A221	A222	A223	A224	A225	A226	A227	A228

<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>
A229	A230	A231	A232	A233	A234	A235	A236	A237	A238	A239	A240
A241	A242	A243	A244	A245	A246	A247	A248	A249	A250	A251	A252
A253	A254	A255	A256	A257	A258	A259	A260	A261	A262	A263	A264
A265	A266	A267	A268	A269	A270	A271	A272	A273	A274	A275	A276
A277	A278	A279	A280	A281	A282	A283	A284	A285	A286	A287	A288
A289	A290	A291	A292	A293	A294	A295	A296	A297	A298	A299	A300
A301	A302	A303	A304	A305	A306	A307	A308	A309	A310	A311	A312
A313	A314	A315	A316	A317	A318	A319	A320	A321	A322	A323	A324
A325	A326	A327	A328	A329	A330	A331	A332	A333	A334	A335	A336
A337	A338	A339	A340	A341	A342	A343	A344	A345	A346	A347	A348
A349	A350	A351	A352	A353	A354	A355	A356	A357	A358	A359	A360
A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372
A373	A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384
A385	A386	A387	A388	A389	A390	A391	A392	A393	A394	A395	A396
A397	A398	A399	A400	A401	A402	A403	A404	A405	A406	A407	A408
A409	A410	A411	A412	A413	A414	A415	A416	A417	A418	A419	A420
A421	A422	A423	A424	A425	A426	A427	A428	A429	A430	A431	A432
A433	A434	A435	A436	A437	A438	A439	A440	A441	A442	A443	A444
A445	A446	A447	A448	A449	A450	A451	A452	A453	A454	A455	A456
A457	A458	A459	A460	A461	A462	A463	A464	A465	A466	A467	A468
A469	A470	A471	A472	A473	A474	A475	A476	A477	A478	A479	A480
A481	A482	A483	A484	A485	A486	A487	A488	A489	A490	A491	A492
A493	A494	A495	A496	A497	A498	A499	A500	A501	A502	A503	A504
A505	A506	A507	A508	A509	A510	A511	A512	A513	A514	A515	A516
A517	A518	A519	A520	A521	A522	A523	A524	A525	A526	A527	A528
A529	A530	A531	A532	A533	A534	A535	A536	A537	A538	A539	A540
A541	A542	A543	A544	A545	A546	A547	A548	A549	A550	A551	A552
A553	A554	A555	A556	A557	A558	A559	A560	A561	A562	A563	A564
A565	A566	A567	A568	A569	A570	A571	A572	A573	A574	A575	A576
A577	A578	A579	A580	A581	A582	A583	A584	A585	A586	A587	A588
A589	A590	A591	A592	A593	A594	A595	A596	A597	A598	A599	A600
A601	A602	A603	A604	A605	A606	A607	A608	A609	A610	A611	A612
A613	A614	A615	A616	A617	A618	A619	A620	A621	A622	A623	A624

<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>	<u>C5</u>
A625	A626	A627	A628	A629	A630	A631	A632	A633	A634	A635	A636
A637	A638	A639	A640	A641	A642	A643	A644	A645	A646	A647	A648
A649	A650	A651	A652	A653	A654	A655	A656	A657	A658	A659	A660
A661	A662	A663	A664	A665	A666	A667	A668	A669	A670	A671	A672
A673	A674	A675	A676	A677	A678	A679	A680	A681	A682	A683	A684
A685	A686	A687	A688	A689	A690	A691	A692	A693	A694	A695	A696
A697	A698	A699	A700	A701	A702	A703	A704	A705	A706	A707	A708
A709	A710	A711	A712	A713	A714	A715	A716	A717	A718	A719	A720
A721	A722	A723	A724	A725	A726	A727	A728	A729	A730	A731	A732
A733	A734	A735	A736	A737	A738	A739	A740	A741	A742	A743	A744
A745	A746	A747	A748	A749	A750	A751	A752	A753	A754	A755	A756
A757	A758	A759	A760	A761	A762	A763	A764	A765	A766	A767	A768
A769	A770	A771	A772	A773	A774	A775	A776	A777	A778	A779	A780
A781	A782	A783	A784	A785	A786	A787	A788	A789	A790	A791	A792
A793	A794	A795	A796	A797	A798	A799	A800	A801	A802	A803	A804
A805	A806	A807	A808	A809	A810	A811	A812	A813	A814	A815	A816
A817	A818	A819	A820	A821	A822	A823	A824	A825	A826	A827	A828
A829	A830	A831	A832	-	-	-	-	-	-	-	-

Table 6: Compounds of the formula I, represented as compounds of the formula

**A-Q**

in which Q denotes Q<sub>2</sub> and Q<sub>2</sub> denotes the radical C2:

<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
A49	A50	A51	A52	A53	A54	A55	A56	A57	A58	A59	A60

<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>
A61	A62	A63	A64	A65	A66	A67	A68	A69	A70	A71	A72
A73	A74	A75	A76	A77	A78	A79	A80	A81	A82	A83	A84
A85	A86	A87	A88	A89	A90	A91	A92	A93	A94	A95	A96
A97	A98	A99	A100	A101	A102	A103	A104	A105	A106	A107	A108
A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120
A121	A122	A123	A124	A125	A126	A127	A128	A129	A130	A131	A132
A133	A134	A135	A136	A137	A138	A139	A140	A141	A142	A143	A144
A145	A146	A147	A148	A149	A150	A151	A152	A153	A154	A155	A156
A157	A158	A159	A160	A161	A162	A163	A164	A165	A166	A167	A168
A169	A170	A171	A172	A173	A174	A175	A176	A177	A178	A179	A180
A181	A182	A183	A184	A185	A186	A187	A188	A189	A190	A191	A192
A193	A194	A195	A196	A197	A198	A199	A200	A201	A202	A203	A204
A205	A206	A207	A208	A209	A210	A211	A212	A213	A214	A215	A216
A217	A218	A219	A220	A221	A222	A223	A224	A225	A226	A227	A228
A229	A230	A231	A232	A233	A234	A235	A236	A237	A238	A239	A240
A241	A242	A243	A244	A245	A246	A247	A248	A249	A250	A251	A252
A253	A254	A255	A256	A257	A258	A259	A260	A261	A262	A263	A264
A265	A266	A267	A268	A269	A270	A271	A272	A273	A274	A275	A276
A277	A278	A279	A280	A281	A282	A283	A284	A285	A286	A287	A288
A289	A290	A291	A292	A293	A294	A295	A296	A297	A298	A299	A300
A301	A302	A303	A304	A305	A306	A307	A308	A309	A310	A311	A312
A313	A314	A315	A316	A317	A318	A319	A320	A321	A322	A323	A324
A325	A326	A327	A328	A329	A330	A331	A332	A333	A334	A335	A336
A337	A338	A339	A340	A341	A342	A343	A344	A345	A346	A347	A348
A349	A350	A351	A352	A353	A354	A355	A356	A357	A358	A359	A360
A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372
A373	A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384
A385	A386	A387	A388	A389	A390	A391	A392	A393	A394	A395	A396
A397	A398	A399	A400	A401	A402	A403	A404	A405	A406	A407	A408
A409	A410	A411	A412	A413	A414	A415	A416	A417	A418	A419	A420
A421	A422	A423	A424	A425	A426	A427	A428	A429	A430	A431	A432
A433	A434	A435	A436	A437	A438	A439	A440	A441	A442	A443	A444
A445	A446	A447	A448	A449	A450	A451	A452	A453	A454	A455	A456

<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>	<u>C2</u>
A457	A458	A459	A460	A461	A462	A463	A464	A465	A466	A467	A468
A469	A470	A471	A472	A473	A474	A475	A476	A477	A478	A479	A480
A481	A482	A483	A484	A485	A486	A487	A488	A489	A490	A491	A492
A493	A494	A495	A496	A497	A498	A499	A500	A501	A502	A503	A504
A505	A506	A507	A508	A509	A510	A511	A512	A513	A514	A515	A516
A517	A518	A519	A520	A521	A522	A523	A524	A525	A526	A527	A528
A529	A530	A531	A532	A533	A534	A535	A536	A537	A538	A539	A540
A541	A542	A543	A544	A545	A546	A547	A548	A549	A550	A551	A552
A553	A554	A555	A556	A557	A558	A559	A560	A561	A562	A563	A564
A565	A566	A567	A568	A569	A570	A571	A572	A573	A574	A575	A576
A577	A578	A579	A580	A581	A582	A583	A584	A585	A586	A587	A588
A589	A590	A591	A592	A593	A594	A595	A596	A597	A598	A599	A600
A601	A602	A603	A604	A605	A606	A607	A608	A609	A610	A611	A612
A613	A614	A615	A616	A617	A618	A619	A620	A621	A622	A623	A624
A625	A626	A627	A628	A629	A630	A631	A632	A633	A634	A635	A636
A637	A638	A639	A640	A641	A642	A643	A644	A645	A646	A647	A648
A649	A650	A651	A652	A653	A654	A655	A656	A657	A658	A659	A660
A661	A662	A663	A664	A665	A666	A667	A668	A669	A670	A671	A672
A673	A674	A675	A676	A677	A678	A679	A680	A681	A682	A683	A684
A685	A686	A687	A688	A689	A690	A691	A692	A693	A694	A695	A696
A697	A698	A699	A700	A701	A702	A703	A704	A705	A706	A707	A708
A709	A710	A711	A712	A713	A714	A715	A716	A717	A718	A719	A720
A721	A722	A723	A724	A725	A726	A727	A728	A729	A730	A731	A732
A733	A734	A735	A736	A737	A738	A739	A740	A741	A742	A743	A744
A745	A746	A747	A748	A749	A750	A751	A752	A753	A754	A755	A756
A757	A758	A759	A760	A761	A762	A763	A764	A765	A766	A767	A768
A769	A770	A771	A772	A773	A774	A775	A776	A777	A778	A779	A780
A781	A782	A783	A784	A785	A786	A787	A788	A789	A790	A791	A792
A793	A794	A795	A796	A797	A798	A799	A800	A801	A802	A803	A804
A805	A806	A807	A808	A809	A810	A811	A812	A813	A814	A815	A816
A817	A818	A819	A820	A821	A822	A823	A824	A825	A826	A827	A828
A829	A830	A831	A832	-	-	-	-	-	-	-	-

Table 7: Compounds of the formula I, represented as compounds of the formula

**A-Q**

in which Q denotes  $Q_2$  and  $Q_2$  denotes the radicals D1, D2 or D3:

<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>
-	-	-	-	-	-	-	A8	A9	A10	A11	A12
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
A49	A50	A51	A52	A53	A54	A55	A56	A57	A58	A59	A60
A61	A62	A63	A64	A65	A66	A67	A68	A69	A70	A71	A72
A73	A74	A75	A76	A77	A78	A79	A80	A81	A82	A83	A84
A85	A86	A87	A88	A89	A90	-	-	-	-	-	-
-	-	A99	A100	A101	A102	A103	A104	A105	A106	A107	A108
A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120
A121	A122	A123	A124	A125	A126	A127	A128	A129	A130	A131	A132
A133	A134	A135	A136	A137	A138	A139	A140	A141	A142	A143	A144
A145	A146	A147	A148	A149	A150	A151	A152	A153	A154	A155	A156
A157	A158	A159	A160	A161	A162	A163	A164	A165	A166	A167	A168
A169	A170	A171	A172	A173	A174	A175	A176	A177	A178	A179	A180
A181	A182	A183	A184	A185	A186	A187	A188	A189	A190	A191	A192
A193	A194	A195	A196	A197	A198	A199	A200	A201	A202	A203	A204
A205	A206	A207	A208	A209	A210	A211	A212	A213	A214	A215	A216
A217	A218	A219	A220	A221	A222	A223	A224	A225	A226	A227	A228
A229	A230	A231	A232	A233	A234	A235	A236	A237	A238	A239	A240
A241	A242	A243	A244	A245	A246	A247	A248	A249	A250	A251	A252
A253	A254	A255	A256	A257	A258	A259	A260	A261	A262	A263	A264
A265	A266	A267	A268	A269	A270	A271	A272	A273	A274	A275	A276
A277	A278	A279	A280	A281	A282	A283	A284	A285	A286	A287	A288

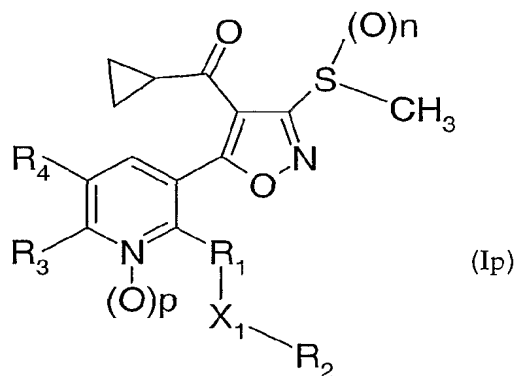
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<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>	<u>D1/D2/</u>
<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>	<u>D3</u>
A289	A290	A291	A292	A293	A294	A295	A296	A297	A298	A299	A300
A301	A302	A303	A304	A305	A306	A307	A308	A309	A310	A311	A312
A313	A314	A315	A316	A317	A318	A319	A320	A321	A322	A323	A324
A325	A326	A327	A328	A329	A330	A331	A332	A333	A334	A335	A336
A337	A338	A339	A340	A341	A342	A343	A344	A345	A346	A347	A348
A349	A350	A351	A352	A353	A354	A355	A356	A357	A358	A359	A360
A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372
A373	A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384
A385	A386	A387	A388	A389	A390	A391	A392	A393	A394	A395	A396
A397	A398	A399	A400	A401	A402	A403	A404	A405	A406	A407	A408
A409	A410	A411	A412	A413	A414	A415	A416	A417	A418	A419	A420
A421	A422	A423	A424	A425	A426	A427	A428	A429	A430	A431	A432
A433	A434	A435	A436	A437	A438	A439	A440	A441	A442	A443	A444
A445	A446	A447	A448	A449	A450	A451	A452	A453	A454	A455	A456
A457	A458	A459	A460	A461	A462	A463	A464	A465	A466	A467	A468
A469	A470	A471	A472	A473	A474	A475	A476	A477	A478	A479	A480
A481	A482	A483	A484	A485	A486	A487	A488	A489	A490	A491	A492
A493	A494	A495	A496	A497	A498	A499	A500	A501	A502	A503	A504
A505	A506	A507	A508	A509	A510	A511	A512	A513	A514	A515	A516
A517	A518	A519	A520	A521	A522	A523	A524	A525	A526	A527	A528
A529	A530	A531	A532	A533	A534	A535	A536	A537	A538	A539	A540
A541	A542	A543	A544	A545	-	-	-	-	-	-	-
-	A554	A555	A556	A557	A558	A559	A560	A561	A562	A563	A564
A565	A566	A567	A568	A569	A570	A571	A572	A573	A574	A575	A576
A577	A578	A579	A580	A581	A582	A583	A584	A585	A586	A587	A588
A589	A590	A591	A592	A593	A594	A595	A596	A597	A598	A599	A600
A601	A602	A603	A604	A605	A606	A607	A608	A609	A610	A611	A612
A613	A614	A615	A616	A617	A618	A619	A620	A621	A622	A623	A624
A625	A626	A627	A628	A629	A630	A631	A632	A633	A634	A635	A636
-	-	-	-	-	-	-	A644	A645	A646	A647	A648
A649	A650	A651	A652	A653	A654	A655	A656	A657	A658	A659	A660

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<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>	<u>D1/D2/</u> <u>D3</u>
A661	A662	A663	A664	A665	A666	A667	A668	A669	A670	A671	A672
A685	A686	A687	A688	A689	A690	A691	A692	A693	A694	A695	A696
A697	A698	A699	A700	A701	A702	A703	A704	A705	A706	A707	A708
A709	A710	A711	A712	A713	A714	A715	A716	A717	A718	A719	A720
A721	A722	A723	A724	A725	A726	-	-	-	-	-	-
A733	A734	A735	A736	A737	A738	A739	A740	A741	A742	A743	A744
A745	A746	A747	A748	A749	A750	A751	A752	A753	A754	A755	A756
A757	A758	A759	A760	A761	A762	A763	A764	A765	A766	A767	A768
A769	A770	A771	A772	A773	A774	A775	A776	A777	A778	A779	A780
A781	A782	A783	A784	A785	A786	A787	A788	A789	A790	A791	A792
A793	A794	A795	A796	A797	A798	A799	A800	A801	A802	A803	A804
A805	A806	A807	A808	A809	A810	A811	A812	A813	A814	A815	A816
A817	A818	A819	A820	A821	A822	A823	A824	A825	A826	A827	A828
A829	A830	A831	A832	-	-	-	-	-	-	-	-

Table 8: Compounds of the formula Ip:



in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $X_1$  and  $p$  have the same meaning as given for the radical A, and  $n$  is 0, 1 or 2:

<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>
-	-	-	-	-	-	-	A8	A9	A10	A11	A12
A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24
A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36
A37	A38	A39	A40	A41	A42	A43	A44	A45	A46	A47	A48
A49	A50	A51	A52	A53	A54	A55	A56	A57	A58	A59	A60
A61	A62	A63	A64	A65	A66	A67	A68	A69	A70	A71	A72
A73	A74	A75	A76	A77	A78	A79	A80	A81	A82	A83	A84
A85	A86	A87	A88	A89	A90	-	-	-	-	-	-
-	-	A99	A100	A101	A102	A103	A104	A105	A106	A107	A108
A109	A110	A111	A112	A113	A114	A115	A116	A117	A118	A119	A120
A121	A122	A123	A124	A125	A126	A127	A128	A129	A130	A131	A132
A133	A134	A135	A136	A137	A138	A139	A140	A141	A142	A143	A144
A145	A146	A147	A148	A149	A150	A151	A152	A153	A154	A155	A156
A157	A158	A159	A160	A161	A162	A163	A164	A165	A166	A167	A168
A169	A170	A171	A172	A173	A174	A175	A176	A177	A178	A179	A180
A181	A182	A183	A184	A185	A186	A187	A188	A189	A190	A191	A192
A193	A194	A195	A196	A197	A198	A199	A200	A201	A202	A203	A204
A205	A206	A207	A208	A209	A210	A211	A212	A213	A214	A215	A216
A217	A218	A219	A220	A221	A222	A223	A224	A225	A226	A227	A228
A229	A230	A231	A232	A233	A234	A235	A236	A237	A238	A239	A240
A241	A242	A243	A244	A245	A246	A247	A248	A249	A250	A251	A252
A253	A254	A255	A256	A257	A258	A259	A260	A261	A262	A263	A264
A265	A266	A267	A268	A269	A270	A271	A272	A273	A274	A275	A276
A277	A278	A279	A280	A281	A282	A283	A284	A285	A286	A287	A288
A289	A290	A291	A292	A293	A294	A295	A296	A297	A298	A299	A300
A301	A302	A303	A304	A305	A306	A307	A308	A309	A310	A311	A312
A313	A314	A315	A316	A317	A318	A319	A320	A321	A322	A323	A324
A325	A326	A327	A328	A329	A330	A331	A332	A333	A334	A335	A336
A337	A338	A339	A340	A341	A342	A343	A344	A345	A346	A347	A348
A349	A350	A351	A352	A353	A354	A355	A356	A357	A358	A359	A360
A361	A362	A363	A364	A365	A366	A367	A368	A369	A370	A371	A372
A373	A374	A375	A376	A377	A378	A379	A380	A381	A382	A383	A384

<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>
A385	A386	A387	A388	A389	A390	A391	A392	A393	A394	A395	A396
A397	A398	A399	A400	A401	A402	A403	A404	A405	A406	A407	A408
A409	A410	A411	A412	A413	A414	A415	A416	A417	A418	A419	A420
A421	A422	A423	A424	A425	A426	A427	A428	A429	A430	A431	A432
A433	A434	A435	A436	A437	A438	A439	A440	A441	A442	A443	A444
A445	A446	A447	A448	A449	A450	A451	A452	A453	A454	A455	A456
A457	A458	A459	A460	A461	A462	A463	A464	A465	A466	A467	A468
A469	A470	A471	A472	A473	A474	A475	A476	A477	A478	A479	A480
A481	A482	A483	A484	A485	A486	A487	A488	A489	A490	A491	A492
A493	A494	A495	A496	A497	A498	A499	A500	A501	A502	A503	A504
A505	A506	A507	A508	A509	A510	A511	A512	A513	A514	A515	A516
A517	A518	A519	A520	A521	A522	A523	A524	A525	A526	A527	A528
A529	A530	A531	A532	A533	A534	A535	A536	A537	A538	A539	A540
A541	A542	A543	A544	A545	-	-	-	-	-	-	-
-	A554	A555	A556	A557	A558	A559	A560	A561	A562	A563	A564
A565	A566	A567	A568	A569	A570	A571	A572	A573	A574	A575	A576
A577	A578	A579	A580	A581	A582	A583	A584	A585	A586	A587	A588
A589	A590	A591	A592	A593	A594	A595	A596	A597	A598	A599	A600
A601	A602	A603	A604	A605	A606	A607	A608	A609	A610	A611	A612
A613	A614	A615	A616	A617	A618	A619	A620	A621	A622	A623	A624
A625	A626	A627	A628	A629	A630	A631	A632	A633	A634	A635	A636
-	-	-	-	-	-	-	A644	A645	A646	A647	A648
A649	A650	A651	A652	A653	A654	A655	A656	A657	A658	A659	A660
A661	A662	A663	A664	A665	A666	A667	A668	A669	A670	A671	A672
A685	A686	A687	A688	A689	A690	A691	A692	A693	A694	A695	A696
A697	A698	A699	A700	A701	A702	A703	A704	A705	A706	A707	A708
A709	A710	A711	A712	A713	A714	A715	A716	A717	A718	A719	A720
A721	A722	A723	A724	A725	A726	-	-	-	-	-	-
A733	A734	A735	A736	A737	A738	A739	A740	A741	A742	A743	A744
A745	A746	A747	A748	A749	A750	A751	A752	A753	A754	A755	A756
A757	A758	A759	A760	A761	A762	A763	A764	A765	A766	A767	A768
A769	A770	A771	A772	A773	A774	A775	A776	A777	A778	A779	A780
A781	A782	A783	A784	A785	A786	A787	A788	A789	A790	A791	A792

<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>
A793	A794	A795	A796	A797	A798	A799	A800	A801	A802	A803	A804
A805	A806	A807	A808	A809	A810	A811	A812	A813	A814	A815	A816
A817	A818	A819	A820	A821	A822	A823	A824	A825	A826	A827	A828
A829	A830	A831	A832	-	-	-	-	-	-	-	-

Table 9: Compounds of the formula I, represented as compounds of the formula

### A-Q

in which A denotes A10:

<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>
B1	B2	-	B4	B5	B6	B7	B8	B9	B10	B11	B12
B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24
B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36
B37	B38	-	B40	B41	B42	B43	B44	B45	B46	B47	B48
B49	B50	B51	-	B53	B54	B55	B56	B57	B58	B59	B60
B61	B62	B63	B64	B65	B66	B67	B68	B69	B70	B71	B72
B73	B74	B75	B76	B77	B78	B79	B80	B81	B82	B83	B84
B85	B86	B87	B88	B89	B90	B91	B92	B93	B94		B96
B97	B98	B99	B100	B101	B102	B103	B104	B105	B106	B107	B108
B109	B110	-	-	-	-	-	-	-	-	-	-

Table 10: Compounds of the formula I, represented as compounds of the formula

### A-Q

in which A denotes A10:

- 125 -

<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>
C1	-	C3	C4	-	C6	C7	C8	C9	C10	C11	C12	
C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	
C25	C26	C27	-	-	-	-	-	-	-	-	-	-

Table 11: Compounds of the formula I, represented as compounds of the formula

**A-Q**

in which A denotes A10:

<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>	<u>A10</u>
-	-	-	D4	D5	D6	D7	D8	D9	D10	D11	D12	

Table 12: Compounds of the formula I, represented as compounds of the formula

**A-Q**

in which A denotes A556:

<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>
B1	B2	-	B4	B5	B6	B7	B8	B9	B10	B11	B12	
B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24	
B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36	
B37	B38	-	B40	B41	B42	B43	B44	B45	B46	B47	B48	
B49	B50	B51	-	B53	B54	B55	B56	B57	B58	B59	B60	
B61	B62	B63	B64	B65	B66	B67	B68	B69	B70	B71	B72	
B73	B74	B75	B76	B77	B78	B79	B80	B81	B82	B83	B84	
B85	B86	B87	B88	B89	B90	B91	B92	B93	B94		B96	
B97	B98	B99	B100	B101	B102	B103	B104	B105	B106	B107	B108	

<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>
B109	B110	-	-	-	-	-	-	-	-	-	-

Table 13: Compounds of the formula I, represented as compounds of the formula

### A-Q

in which A denotes A556:

<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>
C1	-	C3	C4	-	C6	C7	C8	C9	C10	C11	C12
C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24
C25	C26	C27	-	-	-	-	-	-	-	-	-

Table 14: Compounds of the formula I, represented as compounds of the formula

### A-Q

in which A denotes A556:

<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>	<u>A556</u>
-	-	-	D4	D5	D6	D7	D8	D9	D10	D11	D12

Table 15: Compounds of the formula I, represented as compounds of the formula

### A-Q

in which A denotes A646:

<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>
B1	B2	-	B4	B5	B6	B7	B8	B9	B10	B11	B12
B13	B14	B15	B16	B17	B18	B19	B20	B21	B22	B23	B24
B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36
B37	B38	-	B40	B41	B42	B43	B44	B45	B46	B47	B48
B49	B50	B51	-	B53	B54	B55	B56	B57	B58	B59	B60
B61	B62	B63	B64	B65	B66	B67	B68	B69	B70	B71	B72
B73	B74	B75	B76	B77	B78	B79	B80	B81	B82	B83	B84
B85	B86	B87	B88	B89	B90	B91	B92	B93	B94		B96
B97	B98	B99	B100	B101	B102	B103	B104	B105	B106	B107	B108
B109	B110	-	-	-	-	-	-	-	-	-	-

Table 16: Compounds of the formula I, represented as compounds of the formula

### A-Q

in which A denotes A646:

<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>
C1	-	C3	C4	-	C6	C7	C8	C9	C10	C11	C12
C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24
C25	C26	C27	-	-	-	-	-	-	-	-	-

Table 17: Compounds of the formula I, represented as compounds of the formula

### A-Q

in which A denotes A646:

<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>	<u>A646</u>
-	-	-	D4	D5	D6	D7	D8	D9	D10	D11	D12	

Table 18: Physical data for the compounds of the formula I given in the tables above: (the melting points are given in °C.)

Compound	m.p. (range)	Phys. state
A1-C2	138-140	crystalline
A2-C2	138-140	crystalline
A833-B52 (K <sup>+</sup> )	145-150	crystalline
A833-B52 (H4)	-	oil
A830-B52	-	amorphous/liquid
A829-B52	-	oil
A829-B1	-	oil
A10-B52 (H3)	54-56	crystalline
A10-B1	71-73	crystalline
A10-B3	-	viscous
A10-B14	-	viscous
A10-B39	99-100	crystalline
A736-B52	100-102	crystalline
A10-C2 (H6)	-	viscous
A57-B52 (H5)	54-56	crystalline
A18-B52	71-74	crystalline
A8-B52	95-98	crystalline
A19-B52	53-55	crystalline
A1-C5	32-34	crystalline
A2-C5	32-33	crystalline
A10-C5	-	resin
A11-C5	38-39	crystalline
A11-B52	-	resin
A834-B52	-	crystalline
A835-B52	-	viscous
A854-B52	-	viscous
A90-B52	-	viscous

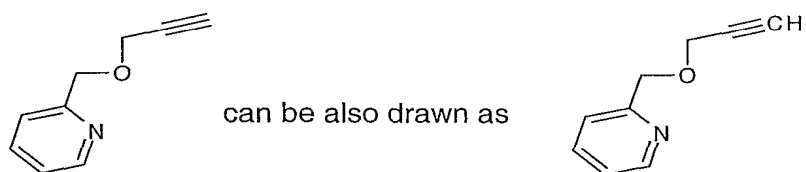
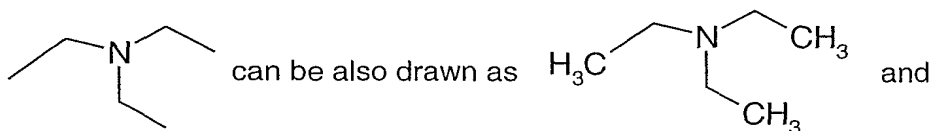
Compound	m.p. (range)	Phys. state
A33-B52	113-115	crystalline
A556-B52	-	crystalline
A646-B52	-	viscous
A868-B52	106-107	crystalline
A855-B52	-	viscous
A817-B52	-	viscous
A819-B52	-	crystalline
A856-B52	-	solid
A857-B52	-	viscous
A63-B52	-	resin
A20-B52	-	solid
A858-B52	-	resin
A836-B52	-	crystalline
A859-B52	-	viscous
A818-B52	-	viscous
A837-B52	-	viscous
A28-B52	-	viscous
A28-B52 (Et <sub>3</sub> NH <sup>+</sup> )	-	crystalline
A838-B52	-	viscous
A839-B52	-	viscous
A860-B52	-	viscous
A860-B113	-	viscous
A861-B52	90-93	crystalline
A840-B52	-	oil
A841-B52	41-43	crystalline
A842-B52	-	viscous
A843-B52	-	viscous
A866-B100	96-98	crystalline
A844-B52	-	viscous
A866-B112	-	viscous
A867-B112	-	viscous
A856-B112	79-81	crystalline
A20-C5	-	viscous
A10-C28	-	resin
A11-C28	-	resin

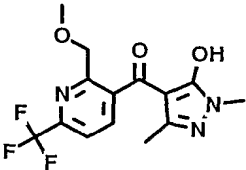
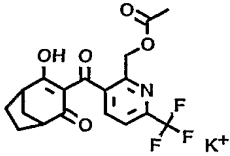
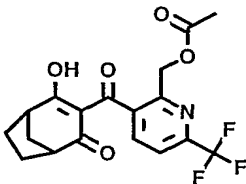
Compound	m.p. (range)	Phys. state
A10-B52 (Et <sub>3</sub> NH <sup>+</sup> )	-	viscous
A862-B52	-	viscous
A24-B52	102-105	crystalline
A845-B52	40-44	crystalline
A837-B52 (Et <sub>3</sub> NH <sup>+</sup> )	-	viscous
A67-B52	68-69	crystalline
A863-B52	80-80	crystalline
A10-B17	40-42	crystalline
A846-B52	-	crystalline
A847-B52	-	viscous
A848-B52	-	crystalline
A56-B52	-	vitreous
A26-B52	-	vitreous
A849-B52	-	viscous
A10-B4	-	viscous
A865-B52	-	viscous
A850-B52	63-64	crystalline
A10-C29	-	resin
A10-B111	76-78	crystalline
A3-C5	-	resin
A834-C5	-	resin
A851-B52	-	vitreous
A852-B52	-	viscous
A10-B25	-	amorphous/liquid
A853-B52	-	viscous
A27-B52	-	oil
A864-C5	149-150	crystalline
A864-B52	110-112	crystalline
A834-B39	-	oil
A-852-OH	-	oil
A-851-OH	102-103	crystalline
A-835-OH	-	oil
A-24-OH	-	solid
A-858-OH	-	oil

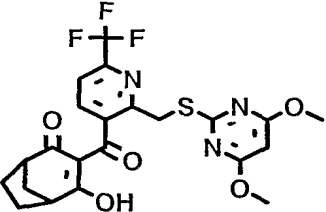
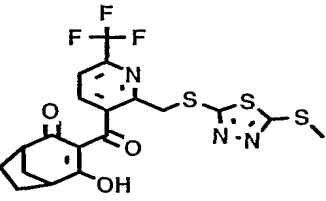
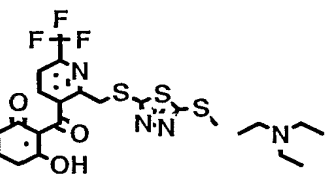
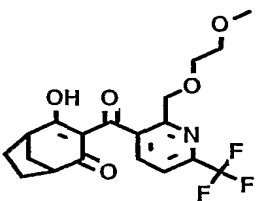
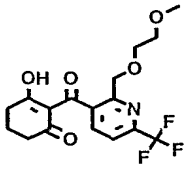
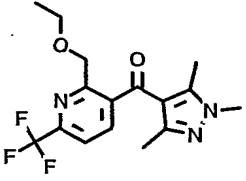
Compound	m.p. (range)	Phys. state
A-859-OH	-	oil
A-864-OH	-	solid
A-851-OH	73-74	crystalline
A-848-OH	81-82	crystalline
A-27-OH	-	oil
A-855-OH	102-104	crystalline
A-90-OH	111-114	crystalline
A-124-OH	117-119	crystalline
A-834-OH	-	crystalline
A-852-OH	-	oil
A-851-OH	102-103	crystalline
A-835-OH	-	oil
A10-OH	62-63	crystalline
A830-OH	157-158	crystalline
A831-OH	188-189	crystalline
A829-OH	131-134	crystalline
A832-OH	110-112	crystalline

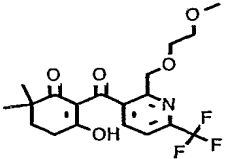
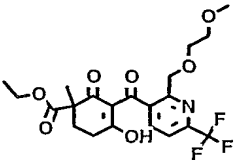
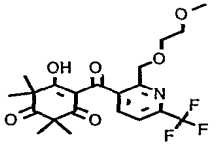
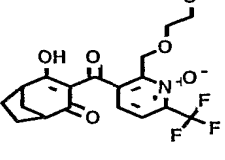
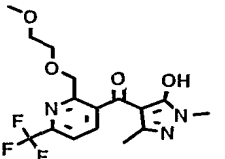
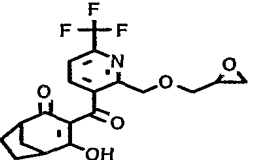
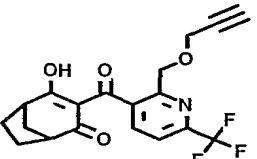
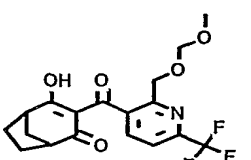
Table 19: Physical data for the compounds of the formula I given in the tables above: (the melting points given in °C.):

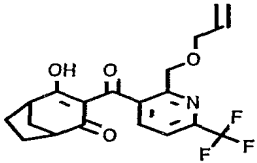
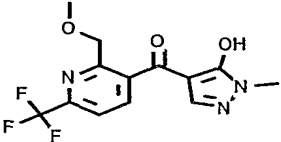
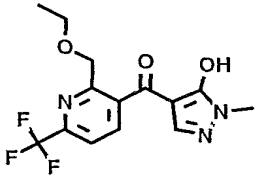
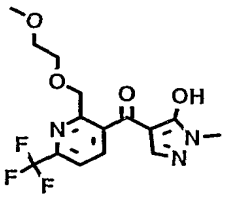
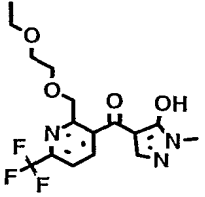
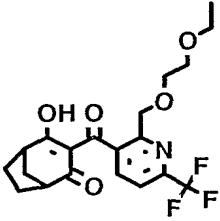
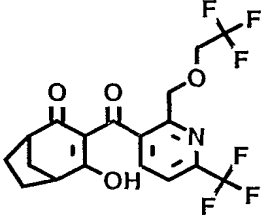
In the following formulas, end-standing valences denote methyl groups (in all cases except alkyne or alkene groups) or hydrogen (in the case of alkyne or alkene groups), for example

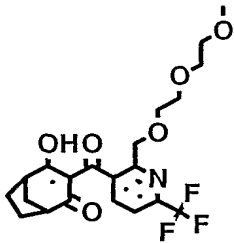
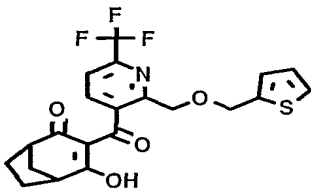
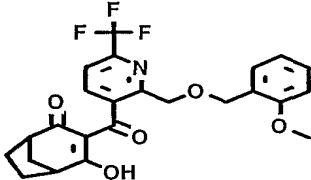
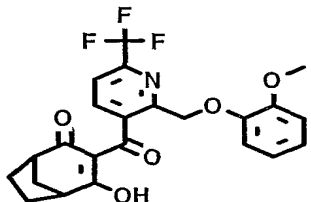
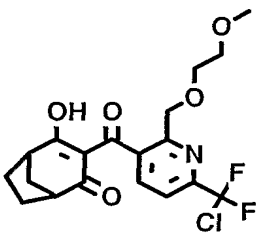
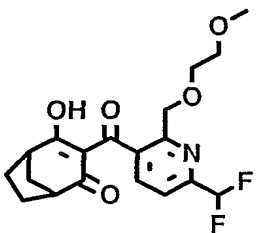


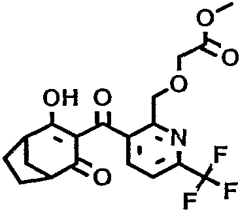
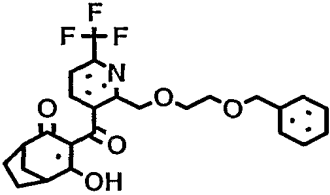
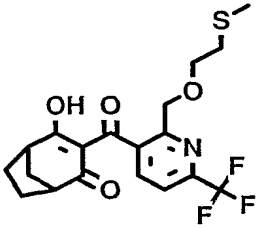
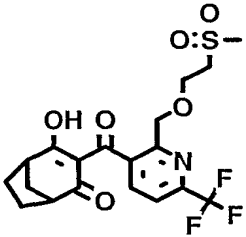
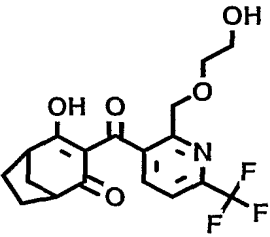
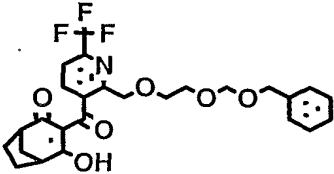
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.001		138-140 crystalline
1.002		145-150 crystalline
1.003		oil

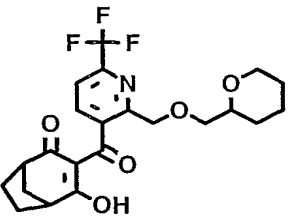
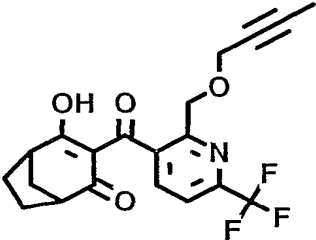
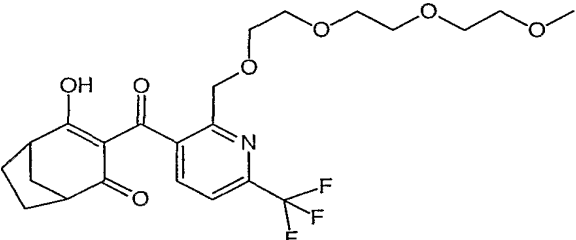
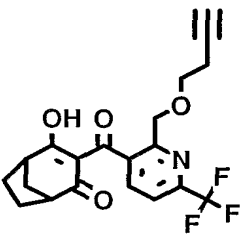
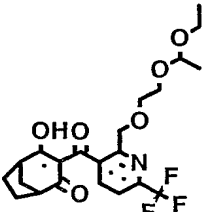
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.004		oil
1.005		oil
1.006		oil
1.007		54-56 crystalline
1.008		crystalline
1.009		viscous, <sup>1</sup> H NMR; 1.82 (s); 3.26 (s); 3.37-3.39 (m); 3.57- 3.60(m); 3.71(s); 4.84 (s); 7.74 (d); 7.82 (d)

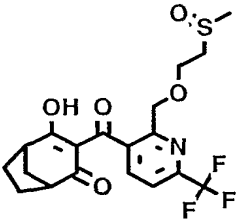
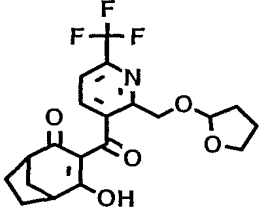
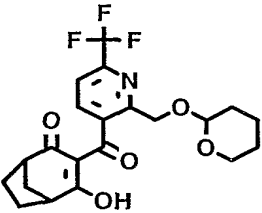
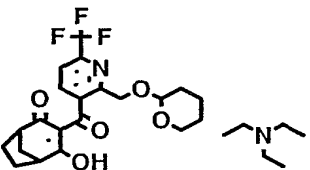
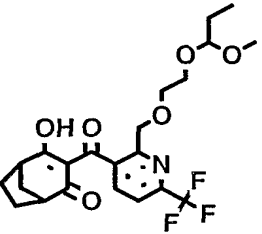
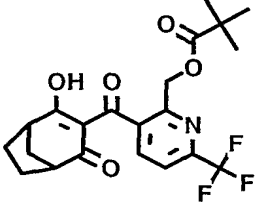
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.010		viscous
1.011		viscous
1.012		99-100 crystalline
1.013		100-102 crystalline
1.014		viscous
1.015		54-56 crystalline
1.016		71-74 crystalline
1.017		95-98 crystalline

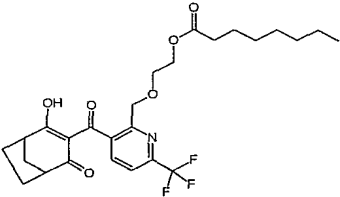
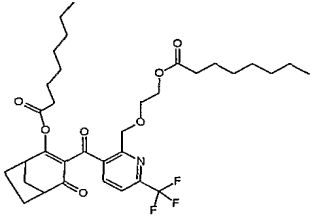
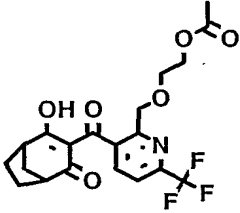
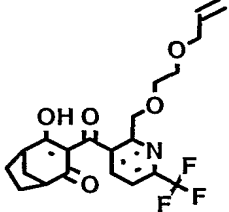
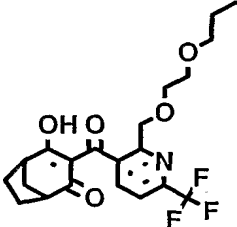
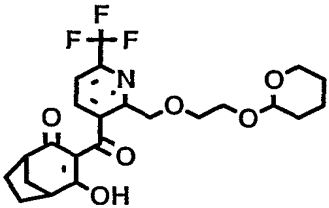
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.018		53-55 crystalline
1.019		32-34 crystalline
1.020		32-33 crystalline
1.021		resin
1.022		38-39 crystalline
1.023		resin
1.024		crystalline

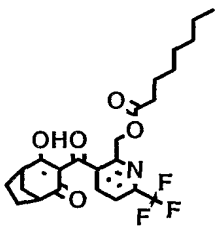
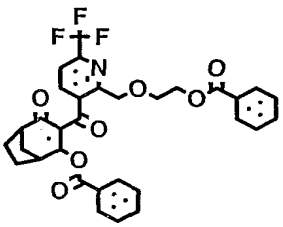
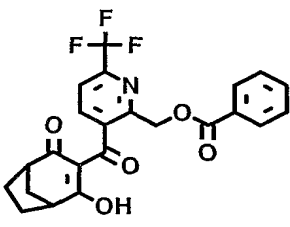
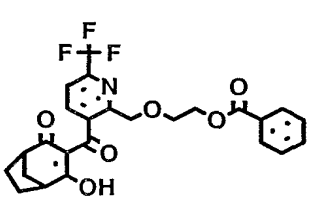
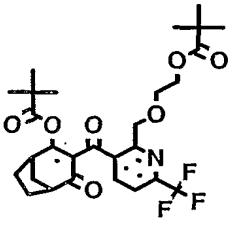
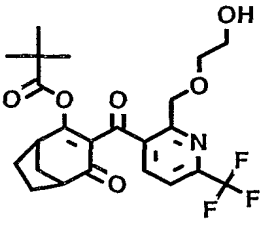
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.025		viscous
1.026		viscous
1.027		viscous
1.028		113-115 crystalline
1.029		crystalline
1.030		viscous

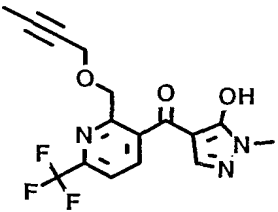
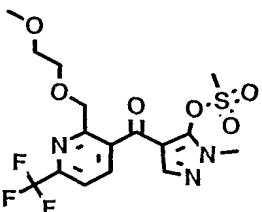
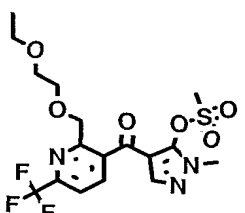
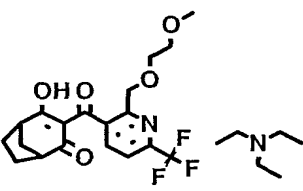
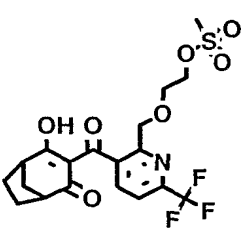
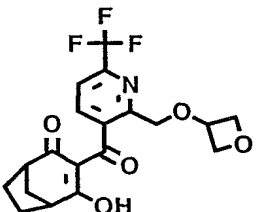
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.031		106-107 crystalline
1.032		viscous
1.033		viscous
1.034		crystalline
1.035		crystalline
1.036		viscous

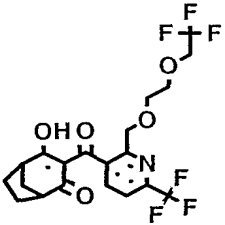
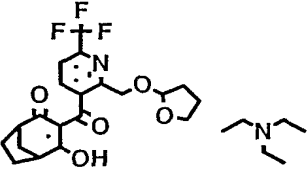
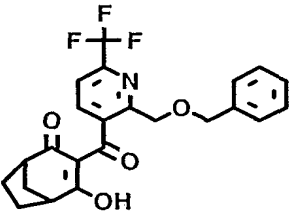
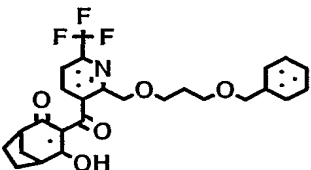
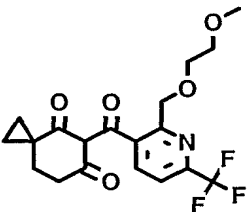
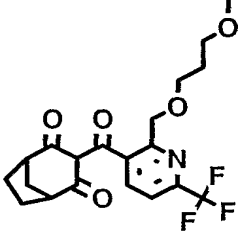
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.037		resin
1.038		solid
1.039		resin
1.040		crystalline
1.041		viscous

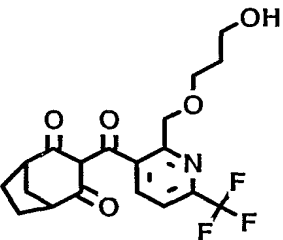
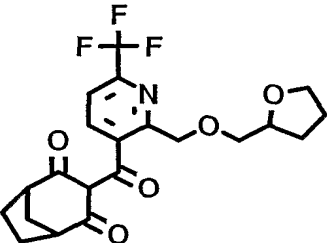
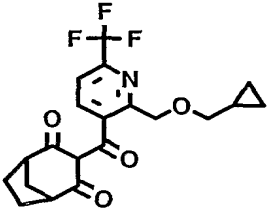
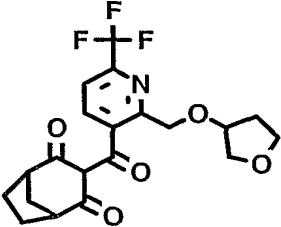
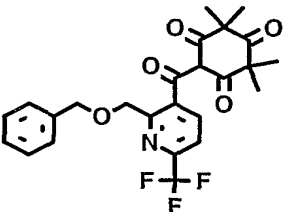
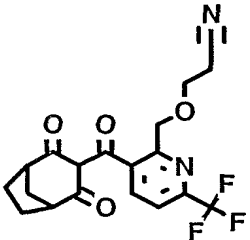
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.042		viscous
1.043		viscous
1.044		viscous
1.045		crystalline
1.046		viscous
1.047		viscous

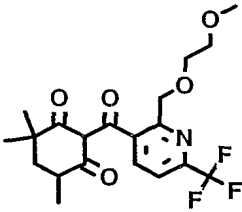
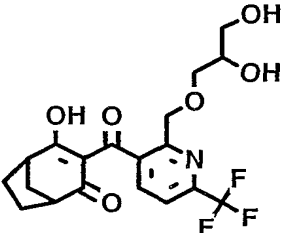
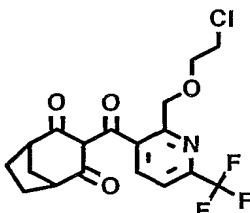
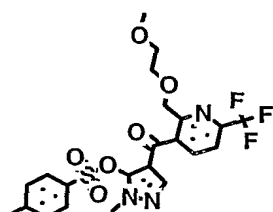
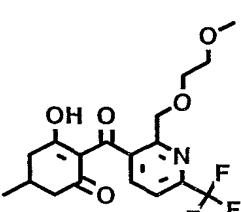
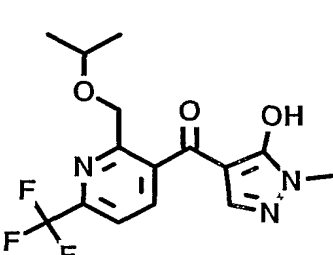
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.048		viscous
1.049		viscous
1.050		90-93
1.051		oil
1.052		41-43
1.053		viscous

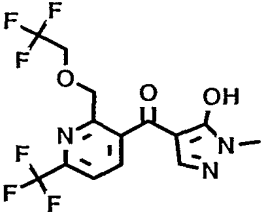
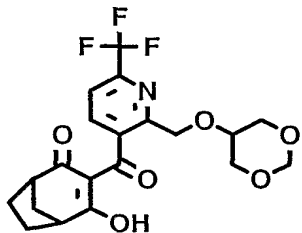
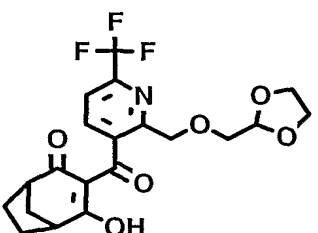
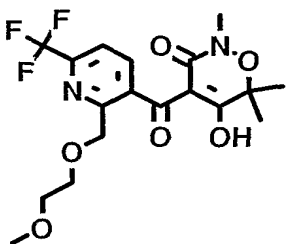
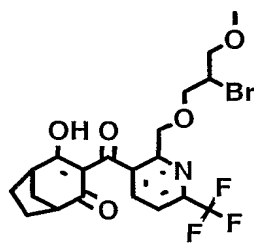
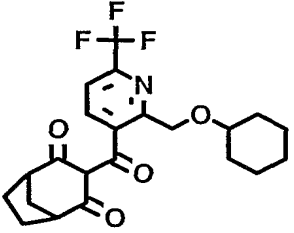
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.054		viscous
1.055		96-98
1.056		viscous
1.057		viscous
1.058		viscous
1.059		79-81

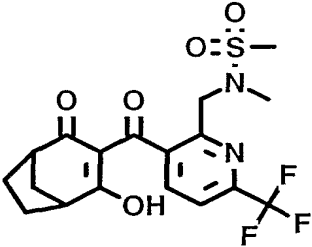
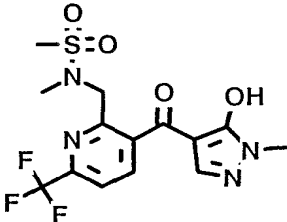
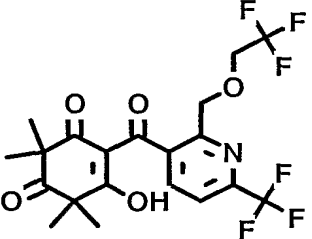
Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.060		viscous
1.061		viscous
1.062		resin
1.063		crystalline
1.064		viscous
1.065		102-105 crystalline

Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.066		40-44 crystalline
1.067		viscous
1.068		68-69 crystalline
1.069		78-80 crystalline
1.070		40-42
1.071		crystalline

Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.072		viscous
1.073		46-47 crystalline
1.074		vitreous
1.075		vitreous
1.076		75-76
1.077		viscous

Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.078		viscous
1.079		viscous
1.080		63-64 crystalline
1.081		resin
1.082		76-78 crystalline
1.083		resin

Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.084		resin
1.085		vitreous
1.086		viscous
1.087		oil
1.088		viscous
1.089		oil

Comp. No.	Corresponding Formula	m.p. (range) Phys. state
1.090		149-150 crystalline
1.091		110-112 crystalline
1.092		crystalline

### Biological examples

#### Example B1: Herbicidal action before emergence of the plants (pre-emergence action)

Monocotyledonous and dicotyledonous test plants are sown in standard soil in pots. Immediately after sowing, the test substances are sprayed on at an optimum dosage (500 l of water/ha) as an aqueous suspension (prepared from a wettable powder (example F3, b) according to WO 97/34485) or emulsion (prepared from an emulsion concentrate (example F1, c) according to WO 97/34485). The test plants are then grown under optimum conditions in a greenhouse.

After a test period of 4 weeks, the test is evaluated using a 9-level scale of ratings (1 = complete damage, 9 = no effect). Ratings of 1 to 4 (in particular 1 to 3) mean good to very good herbicidal action.

Table B1: Pre-emergence action: ("NT" means "not tested"):

Compound	g/ha	Panicum	Digitaria	Echino.	Abutilon	Amaranthus	Chenop.
A10-B1	250	2	2	2	1	1	1
A10-B52, (H3)	250	1	1	1	1	1	1
A830-B52	250	4	9	3	5	4	4
A1-C2	250	6	3	3	4	3	1
A833-B52 (K+)	250	1	2	2	1	2	1
A833-B52, (H4)	250	1	1	1	1	1	1
A10-B1	250	2	2	2	1	1	1
A10-B3	250	1	1	1	1	1	1
A10-B14	250	3	6	3	1	1	1
A10-B39	250	1	1	1	1	1	1
A736-B52	250	1	4	2	1	1	1
A10-C2 (H6)	250	3	3	3	1	2	1
A57-B52 (H5)	250	1	1	1	1	1	1
A18-B52	250	1	1	1	2	2	NT
A8-B52	250	1	1	1	1	1	NT
A19-B52	250	1	1	1	1	2	NT
A1-C5	250	2	2	1	2	2	1
A2-C5	250	1	2	2	1	1	1
A10-C5	250	2	3	1	1	1	1
A11-C5	250	1	2	1	1	1	1
A11-B52	250	1	1	1	1	2	1
A834-B52	250	1	1	1	1	2	1
A835-B52	250	1	2	1	2	1	2
A556-B52	250	1	1	1	1	2	1
A646-B52	250	1	1	1	1	2	1
A819-B52	250	7	9	7	1	2	1
A63-B52	250	2	3	1	5	3	NT
A20-B52	250	1	1	1	3	3	NT
A836-B52	250	1	2	1	5	2	3
A837-B52	250	1	2	2	1	2	NT
A28-B52	250	1	2	2	2	3	NT
A28-B52 (Et3NH+)	250	1	2	2	3	1	NT

Compound	g/ha	Panicum	Digitaria	Echino.	Abutilon	Amaranthus	Chenop.
A838-B52	250	1	3	2	1	1	1
A839-B52	250	1	3	2	1	1	1
A840-B52	250	1	2	2	2	2	1
A841-B52	250	1	2	1	1	1	1
A842-B52	250	1	6	2	2	2	1
A843-B52	250	1	2	2	1	1	1
A844-B52	250	1	2	2	1	1	1
A20-C5	250	1	2	2	1	1	1
A10-C28	250	1	3	2	1	1	1
A11-C28	250	2	2	1	2	1	1
A10-B52 (Et3NH+)	250	1	1	2	1	1	1
A24-B52	250	1	1	1	1	1	1
A845-B52	250	1	1	1	1	1	1
A837-B52 (Et3NH+)	250	1	1	2	1	1	1
A67-B52	250	1	2	2	3	2	1
A10-B17	250	1	1	1	4	2	1
A846-B52	250	1	1	1	2	1	1
A847-B52	250	1	3	2	4	1	4
A848-B52	250	1	1	1	7	1	1
A56-B52	250	1	2	1	3	1	1
A26-B52	250	1	1	1	1	1	1
A849-B52	250	1	2	2	2	1	1
A10-B4	250	2	3	1	3	1	1
A850-B52	250	1	2	1	1	2	1
A10-C29	250	2	2	1	1	1	NT
A10-B111	250	1	1	1	1	1	NT
A3-C5	250	1	2	2	1	1	NT
A834-C5	250	1	3	1	1	2	NT
A851-B52	250	1	1	1	1	1	1
A852-B52	250	1	1	1	4	1	2
A10-B25	250	1	1	2	1	1	1
A853-B52	250	1	1	2	1	1	2
A27-B52	250	1	2	3	4	1	3

The same results are obtained when the compounds of the formula I are formulated according to the other examples of WO 97/34485.

Example B2: Post-emergence herbicidal action

Monocotyledonous and dicotyledonous test plants are grown in standard soil in pots. At the 2- to 3-leaf stage of the test plants, the test substances are sprayed at optimum dosage (500 l of water/ha) as an aqueous suspension (prepared from a wettable powder (example F3, b) according to WO 97/34485) or emulsion (prepared from an emulsion concentrate (example F1, c) according to WO 97/34485). The test plants are then grown further under optimum conditions in a greenhouse.

After a test period of 2 to 3 weeks, the test is evaluated using a 9-level scale of rating (1 = complete damage, 9 = no effect). Ratings of 1 to 4 (in particular 1 to 3) mean good to very good herbicidal action.

Table B2: Post-emergence action:

Compound	g/ha	Panicum	Digitaria	Echino.	Abutilon	Xanth.	Ipopur.	Amaranth	Chenop.
A10-B1	250	2	2	2	2	2	2	2	1
A10-B52, (H3)	250	1	1	2	1	2	2	2	1
A830-B52	250	4	9	3	5	4	5	4	4
A829-B52	250	2	6	4	3	6	4	2	2
A829-B1	250	7	9	7	7	4	6	2	2
A1-C2	250	7	8	4	3	4	3	2	4
A833-B52 (K+)	250	3	3	4	3	2	3	3	3
A833-B52, (H4)	250	3	3	4	3	1	2	2	3
A10-B3	250	1	1	3	1	1	2	1	1
A10-B14	250	2	2	3	2	2	2	2	1
A10-B39	250	1	3	3	1	2	2	1	1
A736-B52	250	1	1	2	1	2	2	1	1
A10-C2 (H6)	250	2	4	3	2	1	3	1	1
A57-B52 (H5)	250	1	1	2	1	2	2	1	1
A18-B52	250	1	1	2	1	2	2	1	1
A8-B52	250	1	1	1	1	2	1	1	1
A19-B52	250	1	1	2	1	2	1	1	1

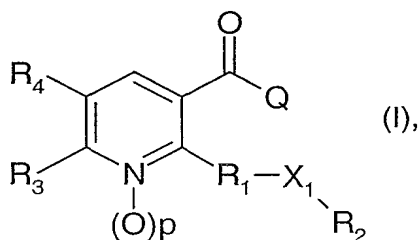
Compound	g/ha	Panicum	Digitaria	Echino.	Abutilon	Xanth.	Ipopur.	Amaranth	Chenop.
A1-C5	250	4	2	2	2	4	2	2	1
A2-C5	250	1	2	2	2	2	2	1	1
A10-C5	250	2	2	2	2	2	2	1	1
A11-C5	250	1	2	2	2	2	2	2	1
A11-B52	250	1	1	2	2	2	2	1	1
A834-B52	250	1	1	2	2	2	2	1	1
A835-B52	250	1	1	2	2	3	2	2	1
A854-B52	250	1	2	2	2	2	2	1	1
A90-B52	250	2	2	3	2	3	4	3	1
A33-B52	250	2	2	2	2	3	2	2	1
A556-B52	250	1	2	2	1	2	2	2	1
A646-B52	250	1	2	2	2	2	2	2	1
A855-B52	250	2	2	2	2	2	2	2	1
A817-B52	250	1	2	2	2	2	2	2	1
A819-B52	250	2	3	2	2	2	2	2	1
A856-B52	250	2	2	2	2	2	1	2	1
A857-B52	250	2	2	2	2	2	2	2	1
A63-B52	250	1	2	2	2	2	2	2	2
A20-B52	250	1	2	2	2	2	2	2	1
A858-B52	250	2	2	2	2	2	2	1	2
A836-B52	250	2	2	2	2	3	3	2	1
A859-B52	250	1	2	2	2	2	2	2	1
A818-B52	250	2	2	3	2	2	2	2	1
A837-B52	250	1	2	2	2	2	2	1	1
A28-B52	250	1	2	2	2	3	4	1	1
A28-B52									
(Et3NH+)	250	1	2	2	2	3	2	2	1
A838-B52	250	2	2	3	1	2	2	2	1
A839-B52	250	2	2	2	2	2	2	2	1
A860-B52	250	2	1	2	2	2	2	2	1
A861-B52	250	2	3	5	3	2	2	2	1
A840-B52	250	2	3	4	3	3	3	2	1
A841-B52	250	2	4	4	3	3	3	1	1
A842-B52	250	3	3	5	3	3	3	2	1
A843-B52	250	2	3	3	3	3	6	3	1

Compound	g/ha	Panicum	Digitaria	Echino.	Abutilon	Xanth.	Ipopur.	Amaranth	Chenop.
A844-B52	250	2	3	4	3	3	3	3	1
A856-B112	250	3	3	5	2	3	3	3	1
A20-C5	250	2	3	4	3	3	3	2	1
A10-C28	250	4	4	4	3	3	3	2	1
A11-C28	250	3	4	4	3	3	3	2	1
A10-B52									
(Et3NH+)	250	2	2	2	2	2	2	2	1
A862-B52	250	2	2	3	3	2	5	2	1
A24-B52	250	2	2	2	2	2	2	2	1
A845-B52	250	2	2	2	2	2	2	2	1
A837-B52									
(Et3NH+)	250	2	2	2	2	2	2	2	1
A67-B52	250	2	2	2	2	2	3	2	1
A863-B52	250	2	2	3	2	2	3	2	1
A10-B17	250	2	1	2	2	2	2	2	1
A846-B52	250	1	2	2	2	2	1	2	2
A847-B52	250	1	2	1	2	2	4	3	1
A848-B52	250	2	2	2	2	2	2	1	1
A56-B52	250	1	2	2	2	2	2	1	1
A26-B52	250	2	2	2	2	2	2	2	1
A849-B52	250	2	2	3	2	2	2	2	2
A10-B4	250	1	1	2	1	2	1	2	1
A850-B52	250	2	2	2	2	2	2	2	1
A10-C29	250	2	3	3	2	2	1	2	1
A10-B111	250	2	2	3	3	3	3	2	1
A3-C5	250	3	4	3	3	3	3	3	1
A851-B52	250	3	3	4	3	3	3	2	1
A852-B52	250	3	4	4	3	3	3	3	1
A10-B25	250	3	4	4	3	3	3	2	1
A27-B52	250	1	2	2	3	2	4	2	5
A864-C5	250	1	2	2	2	2	2	1	1
A864-B52	250	2	2	2	2	2	2	2	1

The same results are obtained when the compounds of the formula I are formulated according to the other examples of WO 97/34485.

WHAT IS CLAIMED IS:

1. A compound of the formula I



in which

p is 0 or 1;

R<sub>1</sub> is a C<sub>1</sub>-C<sub>6</sub>alkylene, C<sub>3</sub>-C<sub>6</sub>alkenylene or C<sub>3</sub>-C<sub>6</sub>alkynylene chain which may be mono- or polysubstituted by halogen or R<sub>5</sub>, where the unsaturated bonds of the chain are not attached directly to the substituent X<sub>1</sub>;

X<sub>1</sub> is oxygen, -O(CO)-, -(CO)O-, -O(CO)O-, -N(R<sub>6</sub>)-O-, -O-NR<sub>51</sub>-, thio, sulfinyl, sulfonyl, -SO<sub>2</sub>NR<sub>7</sub>-, -NR<sub>52</sub>SO<sub>2</sub>- or -NR<sub>8</sub>-;

R<sub>2</sub> is a C<sub>1</sub>-C<sub>8</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>alkenyl or C<sub>3</sub>-C<sub>6</sub>alkynyl group which is mono- or polysubstituted by halogen, hydroxyl, amino, formyl, nitro, cyano, mercapto, carbamoyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>haloalkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>2</sub>-C<sub>6</sub>haloalkynyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, by halogen-substituted C<sub>3</sub>-C<sub>6</sub>cycloalkyl, or by C<sub>3</sub>-C<sub>6</sub>alkenyloxy, C<sub>3</sub>-C<sub>6</sub>alkynyloxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>3</sub>-C<sub>6</sub>haloalkenyloxy, cyano-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylcarbonyl, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>haloalkylthio, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfonyl, oxiranyl, which for its part may be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, or by (3-oxetanyl)oxy, which for its part may be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, or by benzylthio, benzylsulfinyl, benzylsulfonyl, C<sub>1</sub>-C<sub>6</sub>alkylamino, di(C<sub>1</sub>-C<sub>6</sub>alkyl)amino, R<sub>9</sub>S(O)<sub>2</sub>O, R<sub>10</sub>N(R<sub>11</sub>)SO<sub>2</sub>-, thiocyanato, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl; where the phenyl- or benzyl-containing groups for their part may be substituted by one or more C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro groups, or

$R_2$  is phenyl which may be mono- or polysubstituted by  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ haloalkoxy, halogen, cyano, hydroxyl or nitro; or

$R_2$  is  $C_3$ - $C_6$ cycloalkyl,  $C_1$ - $C_6$ alkoxyl- or  $C_1$ - $C_6$ alkyl-substituted  $C_3$ - $C_6$ cycloalkyl, 3-oxetanyl or  $C_1$ - $C_6$ alkyl-substituted 3-oxetanyl;

or, if Q is  $Q_2$  or  $Q_3$ , or is  $Q_1$  in which  $R_{14}$  and  $R_{22}$  are a  $C_2$ - $C_3$ alkylene chain,  $R_2$  is additionally also a five- to ten-membered monocyclic or fused bicyclic ring system which may be aromatic, saturated or partially saturated and may contain 1 to 4 heteroatoms selected from the group consisting of nitrogen, oxygen and sulfur, where the ring system is attached directly or via a  $C_1$ - $C_4$ alkylene,  $C_2$ - $C_4$ alkenyl- $C_1$ - $C_4$ alkylene,  $C_2$ - $C_4$ alkynyl- $C_1$ - $C_4$ alkylene,  $-N(R_{12})$ - $C_1$ - $C_4$ alkylene,  $-SO$ - $C_1$ - $C_4$ alkylene or  $-SO_2$ - $C_1$ - $C_4$ alkylene group to the substituent  $X_1$  and where each ring system may not contain more than two oxygen atoms and not more than two sulfur atoms and the ring system for its part may be mono-, di- or trisubstituted by  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ haloalkenyl,  $C_2$ - $C_6$ alkynyl,  $C_2$ - $C_6$ haloalkynyl,  $C_1$ - $C_6$ alkoxy, hydroxyl,  $C_1$ - $C_6$ haloalkoxy,  $C_3$ - $C_6$ alkenyloxy,  $C_3$ - $C_6$ alkynyloxy, mercapto,  $C_1$ - $C_6$ alkylthio,  $C_1$ - $C_6$ haloalkylthio,  $C_3$ - $C_6$ alkenylthio,  $C_3$ - $C_6$ haloalkenylthio,  $C_3$ - $C_6$ alkynylthio,  $C_2$ - $C_5$ alkoxyalkylthio,  $C_3$ - $C_5$ acetylalkylthio,  $C_3$ - $C_6$ alkoxycarbonylalkylthio,  $C_2$ - $C_4$ cyanoalkylthio,  $C_1$ - $C_6$ alkylsulfinyl,  $C_1$ - $C_6$ haloalkylsulfinyl,  $C_1$ - $C_6$ alkylsulfonyl,  $C_1$ - $C_6$ haloalkylsulfonyl, aminosulfonyl,  $C_1$ - $C_2$ alkylaminosulfonyl, di( $C_1$ - $C_2$ alkyl)aminosulfonyl, di( $C_1$ - $C_4$ alkyl)amino, halogen, cyano, nitro, phenyl and benzylthio, where phenyl and benzylthio for their part may be substituted on the phenyl ring by  $C_1$ - $C_3$ alkyl,  $C_1$ - $C_3$ haloalkyl,  $C_1$ - $C_3$ alkoxy,  $C_1$ - $C_3$ haloalkoxy, halogen, cyano or nitro, and where the substituents on the nitrogen in the heterocyclic ring are different from halogen; or

$R_2$  is hydrogen or unsubstituted  $C_1$ - $C_8$ alkyl if

a)  $R_1$  is substituted by the group  $R_5$ , or

b) Q is the group  $Q_2$ , or

c) Q is the group  $Q_3$  in which  $X_1$  is  $-O(CO)-$ ,  $-(CO)O-$ ,  $-N(R_6)-O-$ ,  $-O-NR_{51}-$ ,  $-SO_2NR_{7-}$ ,  $-NR_{52}SO_2-$  or  $-NR_8-$ ; or

d) Q is the group  $Q_1$  in which  $X_1$  is  $-N(R_6)-O-$ ,  $-O-NR_{51}-$ ,  $-SO_2NR_{7-}$ ,  $-NR_{52}SO_2-$  or  $-NR_8-$ , or

e) Q is the group  $Q_1$  in which  $R_{14}$  and  $R_{22}$  in  $Q_1$  are a  $C_2$ - $C_3$ alkylene chain and  $X_1$  is  $-O(CO)-$  or  $-(CO)O-$ ,

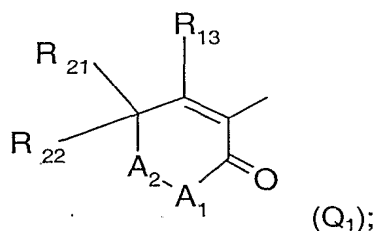
$R_3$  is  $C_1$ - $C_3$ haloalkyl;

$R_4$  is hydrogen, halogen,  $C_1$ - $C_3$ alkyl,  $C_1$ - $C_3$ haloalkyl,  $C_1$ - $C_3$ alkoxy,  $C_1$ - $C_3$ alkoxy- $C_1$ - $C_3$ alkyl or  $C_1$ - $C_3$ alkoxy- $C_1$ - $C_3$ alkoxy;

$R_5$  is hydroxyl,  $C_1$ - $C_6$ alkoxy,  $C_3$ - $C_6$ cycloalkyloxy,  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkoxy or  $C_1$ - $C_2$ alkylsulfonyloxy;

$R_6$ ,  $R_7$ ,  $R_8$ ,  $R_9$ ,  $R_{10}$ ,  $R_{11}$ ,  $R_{12}$ ,  $R_{51}$  and  $R_{52}$  independently of one another are hydrogen,  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_6$ alkoxycarbonyl,  $C_1$ - $C_6$ alkylcarbonyl,  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkyl substituted by  $C_1$ - $C_6$ alkoxy, benzyl or phenyl, where phenyl and benzyl for their part may be mono- or polysubstituted by  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ haloalkoxy, halogen, cyano, hydroxyl or nitro; where  $R_6$  and  $R_9$  are not simultaneously hydrogen and hydrogen,  $C_1$ - $C_6$ alkoxycarbonyl or  $C_1$ - $C_6$ alkylcarbonyl, respectively;

Q is  $Q_1$



in which

$A_1$  is  $C(R_{14}R_{15})$ ,  $NR_{16}$  or oxygen;

$A_2$  is  $C(R_{17}R_{18})$ ,  $C(O)$ ,  $-C=N-O-R_{19}$ , oxygen, thio, sulfinyl, sulfonyl,  $-NR_{20}$  or ethylene; with the provisos that  $A_1$  is different from oxygen if  $A_2$  is oxygen,  $C(O)$ , thio, sulfinyl,  $-C=N-O-R_{19}$ ,  $NR_{20}$  or  $C(R_{17}R_{18})$ , where  $R_{17}$  and  $R_{18}$  independently of one another are  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ alkylthio,  $C_1$ - $C_4$ alkylsulfinyl,  $C_1$ - $C_4$ alkylsulfonyl; and  $A_1$  is different from  $NR_{16}$  if  $A_2$  is thio, sulfinyl or  $C(R_{17}R_{18})$ , where  $R_{17}$  and  $R_{18}$  independently of one another are  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ alkylthio,  $C_1$ - $C_4$ alkylsulfinyl,  $C_1$ - $C_4$ alkylsulfonyl;  $R_{14}$  and  $R_{22}$  independently of one another are hydrogen,  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_4$ haloalkyl,  $C_3$ - $C_4$ alkenyl,  $C_3$ - $C_4$ alkynyl,  $C_1$ - $C_4$ alkylthio,  $C_1$ - $C_4$ alkylsulfinyl,  $C_1$ - $C_4$ alkylsulfonyl,  $C_1$ - $C_4$ alkylsulfonyloxy,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ alkoxycarbonyl or  $C_1$ - $C_4$ alkylcarbonyl;

$R_{15}$  and  $R_{21}$  independently of one another are hydrogen,  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_4$ haloalkyl,  $C_3$ - $C_4$ alkenyl or  $C_3$ - $C_4$ alkynyl;

$R_{17}$  is hydrogen,  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_4$ haloalkyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ alkylthio,  $C_1$ - $C_4$ alkylsulfinyl or  $C_1$ - $C_4$ alkylsulfonyl;

$R_{18}$  is hydrogen,  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_4$ haloalkyl,  $C_3$ - $C_4$ alkenyl,  $C_3$ - $C_4$ alkynyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ alkylthio,  $C_1$ - $C_4$ alkylsulfinyl,  $C_1$ - $C_4$ alkylsulfonyl or  $C_1$ - $C_4$ dialkoxyalkyl- $C_1$ - $C_4$ alkyl;

R<sub>20</sub> is C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl, C<sub>3</sub>-C<sub>4</sub>alkynyl, C<sub>1</sub>-C<sub>4</sub>alkylcarbonyl, C<sub>1</sub>-C<sub>4</sub>alkylcarbonyloxy, di(C<sub>1</sub>-C<sub>4</sub>alkyl)aminocarbonyl or benzyl, where the phenyl group may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro;

R<sub>19</sub> and R<sub>16</sub> independently of one another are hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl, C<sub>3</sub>-C<sub>4</sub>alkynyl, benzyl or phenyl, where phenyl and benzyl for their part may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro;

or R<sub>14</sub> and R<sub>22</sub> together form a C<sub>2</sub>-C<sub>3</sub>alkylene chain;

or R<sub>14</sub> and R<sub>15</sub> together and/or R<sub>17</sub> and R<sub>18</sub> together and/or R<sub>21</sub> and R<sub>22</sub> together form a C<sub>2</sub>-C<sub>4</sub>alkylene chain which may be interrupted by oxygen and/or carbonyl and/or sulfur, with the proviso that the oxygen and sulfur atoms are separated by at least one methylene group;

or R<sub>14</sub> and R<sub>18</sub> together form a C<sub>2</sub>-C<sub>4</sub>alkylene chain; or

R<sub>22</sub> and R<sub>18</sub> together form a C<sub>2</sub>-C<sub>4</sub>alkylene chain;

or R<sub>18</sub> together with R<sub>22</sub> or R<sub>14</sub> forms a direct bond;

or R<sub>16</sub> and R<sub>18</sub> together form a C<sub>2</sub>-C<sub>4</sub>alkylene chain;

R<sub>13</sub> is hydroxyl, O<sup>-</sup>M<sup>+</sup>, where M<sup>+</sup> is an alkali metal cation or ammonium cation, halogen, C<sub>1</sub>-C<sub>12</sub>alkylsulfonyloxy, amino, C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>12</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>12</sub>haloalkylthio, C<sub>1</sub>-C<sub>12</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>haloalkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>3</sub>-C<sub>12</sub>alkenylthio, C<sub>3</sub>-C<sub>12</sub>alkenylsulfinyl, C<sub>3</sub>-C<sub>12</sub>alkenylsulfonyl, C<sub>3</sub>-C<sub>12</sub>alkynylthio, C<sub>3</sub>-C<sub>12</sub>alkynylsulfinyl, C<sub>3</sub>-C<sub>12</sub>alkynylsulfonyl, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl, (C<sub>1</sub>-C<sub>4</sub>alkoxy)<sub>2</sub>P(O)O, C<sub>1</sub>-C<sub>4</sub>alkyl-(C<sub>1</sub>-C<sub>4</sub>alkoxy)P(O)O, H(C<sub>1</sub>-C<sub>4</sub>alkoxy)P(O)O, R<sub>23</sub>R<sub>24</sub>NR<sub>25</sub>R<sub>26</sub>N, NH, R<sub>27</sub>R<sub>28</sub>NC(O)O-, R<sub>29</sub>R<sub>30</sub>NC(O)NH-, C<sub>1</sub>-C<sub>18</sub>alkylcarbonyloxy, C<sub>2</sub>-C<sub>18</sub>alkenylcarbonyloxy, C<sub>2</sub>-C<sub>18</sub>alkynylcarbonyloxy, C<sub>3</sub>-C<sub>6</sub>cycloalkylcarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkoxycarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkylthiocarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkylthiocarbamoyl, where the alkyl, alkenyl and alkynyl groups may be substituted by halogen, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl or cyano;

or R<sub>13</sub> is phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl, phenylsulfonylamino, phenylsulfonyloxy or benzoyloxy, where the phenyl groups for their part may be substituted by one or more halogen, nitro, cyano, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>1</sub>-C<sub>4</sub>alkoxy or C<sub>1</sub>-C<sub>4</sub>haloalkoxy groups;

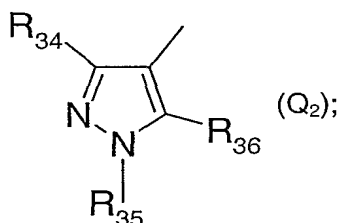
or R<sub>13</sub> is a group Het<sub>1</sub>-thio, Het<sub>2</sub>-sulfinyl, Het<sub>3</sub>-sulfonyl, Het<sub>4</sub>-(CO)O or Het<sub>5</sub>-N(R<sub>33</sub>); in which

Het<sub>1</sub>, Het<sub>2</sub>, Het<sub>3</sub>, Het<sub>4</sub> and Het<sub>5</sub> independently of one another are a five- to ten-membered monocyclic or fused bicyclic ring system which may be aromatic or partially saturated and may contain 1 to 4 heteroatoms selected from the group consisting of nitrogen, oxygen and sulfur, and where each ring system may not contain more than 2 oxygen atoms and not more than 2 sulfur atoms, and where the ring system itself can be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)aminosulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)amino, halogen, cyano, nitro or phenyl, and where the substituents on the nitrogen in the heterocyclic ring are different from halogen;

R<sub>23</sub>, R<sub>24</sub>, R<sub>25</sub>, R<sub>26</sub>, R<sub>27</sub>, R<sub>28</sub>, R<sub>29</sub>, R<sub>30</sub> and R<sub>33</sub> independently of one another are hydrogen or C<sub>1</sub>-C<sub>6</sub>alkyl;

or R<sub>23</sub> and R<sub>24</sub> together or R<sub>25</sub> and R<sub>26</sub> together or R<sub>27</sub> and R<sub>28</sub> together or R<sub>29</sub> and R<sub>30</sub> together are pyrrolidino, piperidino, morpholino, thiomorpholino, which may be mono- or polysubstituted by methyl groups;

or Q is Q<sub>2</sub>



in which

R<sub>34</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>2</sub>-C<sub>4</sub>alkenyl, C<sub>2</sub>-C<sub>4</sub>alkynyl or benzyl, where the phenyl group may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro;

R<sub>35</sub> is hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl, C<sub>3</sub>-C<sub>4</sub>alkenyl, C<sub>3</sub>-C<sub>4</sub>alkynyl or benzyl, where the phenyl group may be mono- or polysubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, halogen, cyano, hydroxyl or nitro;

R<sub>36</sub> is hydroxyl, O<sup>-</sup>M<sup>+</sup>, where M<sup>+</sup> is an alkali metal cation or ammonium cation, halogen,

C<sub>1</sub>-C<sub>12</sub>alkylsulfonyloxy, amino, C<sub>1</sub>-C<sub>4</sub>alkylthio, C<sub>1</sub>-C<sub>12</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>alkylsulfonyl,

C<sub>1</sub>-C<sub>12</sub>haloalkylthio, C<sub>1</sub>-C<sub>12</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>12</sub>haloalkylsulfonyl,

C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkoxy-C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl,

C<sub>3</sub>-C<sub>12</sub>alkenylthio, C<sub>3</sub>-C<sub>12</sub>alkenylsulfinyl, C<sub>3</sub>-C<sub>12</sub>alkenylsulfonyl, C<sub>3</sub>-C<sub>12</sub>alkynylthio,

C<sub>3</sub>-C<sub>12</sub>alkynylsulfinyl, C<sub>3</sub>-C<sub>12</sub>alkynylsulfonyl, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylthio,

C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>4</sub>alkoxycarbonyl-C<sub>1</sub>-C<sub>4</sub>alkylsulfonyl,

(C<sub>1</sub>-C<sub>4</sub>alkoxy)<sub>2</sub>P(O)O, C<sub>1</sub>-C<sub>4</sub>alkyl-(C<sub>1</sub>-C<sub>4</sub>alkoxy)P(O)O, H(C<sub>1</sub>-C<sub>4</sub>alkoxy)P(O)O, R<sub>37</sub>R<sub>38</sub>N, R<sub>39</sub>R<sub>40</sub>NNH, R<sub>41</sub>R<sub>42</sub>NC(O)O-, R<sub>43</sub>R<sub>44</sub>NC(O)NH-, C<sub>1</sub>-C<sub>18</sub>alkylcarbonyloxy, C<sub>2</sub>-C<sub>18</sub>alkenylcarbonyloxy, C<sub>2</sub>-C<sub>18</sub>alkynylcarbonyloxy, C<sub>3</sub>-C<sub>6</sub>cycloalkylcarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkoxycarbonyloxy, C<sub>1</sub>-C<sub>12</sub>alkylthiocarbonyloxy or C<sub>1</sub>-C<sub>12</sub>alkylthiocarbamoyl, where the alkyl, alkenyl and alkynyl groups may be substituted by halogen, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl or cyano; or

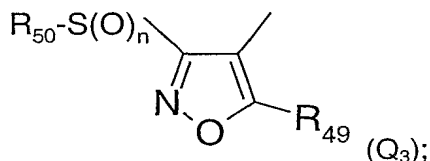
R<sub>36</sub> is phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl, phenylsulfonylamino, phenylsulfonyloxy or benzoyloxy, where the phenyl groups for their part may be mono- or polysubstituted by halogen, nitro, cyano, C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>1</sub>-C<sub>4</sub>alkoxy, C<sub>1</sub>-C<sub>4</sub>haloalkoxy,

or R<sub>36</sub> is a group Het<sub>7</sub>-thio, Het<sub>8</sub>-sulfinyl, Het<sub>9</sub>-sulfonyl, Het<sub>10</sub>-(CO)O or Het<sub>11</sub>-N(R<sub>47</sub>); in which Het<sub>7</sub>, Het<sub>8</sub>, Het<sub>9</sub>, Het<sub>10</sub> and Het<sub>11</sub> independently of one another are a five- to ten-membered monocyclic or fused bicyclic ring system which may be aromatic or partially saturated and may contain 1 to 4 heteroatoms selected from the group consisting of nitrogen, oxygen and sulfur, and where each ring system may not contain more than 2 oxygen atoms and not more than 2 sulfur atoms, and where the ring system for its part may be substituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)aminosulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)amino, halogen, cyano, nitro or phenyl, and where the substituents on the nitrogen in the heterocyclic ring are different from halogen;

R<sub>37</sub>, R<sub>38</sub>, R<sub>39</sub>, R<sub>40</sub>, R<sub>41</sub>, R<sub>42</sub>, R<sub>43</sub>, R<sub>44</sub> and R<sub>47</sub> independently of one another are hydrogen or C<sub>1</sub>-C<sub>6</sub>alkyl; or

R<sub>37</sub> and R<sub>38</sub> together or R<sub>39</sub> and R<sub>40</sub> together or R<sub>41</sub> and R<sub>42</sub> together or R<sub>43</sub> and R<sub>44</sub> together are pyrrolidino, piperidino, morpholino, thiomorpholino, which may be mono- or polysubstituted by methyl groups;

or Q is Q<sub>3</sub>

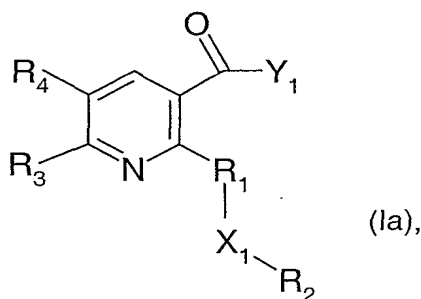


in which

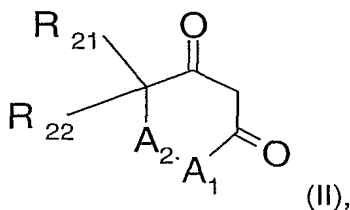
R<sub>49</sub> is C<sub>1</sub>-C<sub>4</sub>alkyl, C<sub>1</sub>-C<sub>4</sub>haloalkyl, C<sub>3</sub>-C<sub>6</sub>cycloalkyl or halogen-substituted C<sub>3</sub>-C<sub>6</sub>cycloalkyl;

$R_{50}$  is  $C_1$ - $C_3$ alkylene which may be substituted by halogen, hydroxyl,  $C_1$ - $C_6$ alkoxy,  $C_2$ - $C_6$ alkenyl,  $C_2$ - $C_6$ alkynyl,  $C_3$ - $C_6$ cycloalkyl,  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkoxy- $C_1$ - $C_6$ alkoxy, (3-oxetanyl)oxy, or by  $C_1$ - $C_6$ alkyl-substituted (3-oxetanyl)oxy, or by benzylthio, benzylsulfinyl, benzylsulfonyl, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl, where the phenyl- and benzyl-containing groups for their part may be substituted by one or more  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ haloalkoxy, halogen, cyano, hydroxyl or nitro groups; or  $R_{50}$  is phenyl, where the phenyl-containing group for its part may be substituted by one or more  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ haloalkyl,  $C_1$ - $C_6$ alkoxy,  $C_1$ - $C_6$ haloalkoxy, halogen, cyano, hydroxyl or nitro, or  $R_{50}$  is  $C_3$ - $C_6$ cycloalkyl,  $C_1$ - $C_6$ alkoxy- or  $C_1$ - $C_6$ alkyl-substituted  $C_3$ - $C_6$ cycloalkyl, 3-oxetanyl or  $C_1$ - $C_6$ alkyl-substituted 3-oxetanyl; and  $n$  is 0, 1 or 2; and agronomically acceptable salts/N-oxides/isomers/enantiomers of this compound.

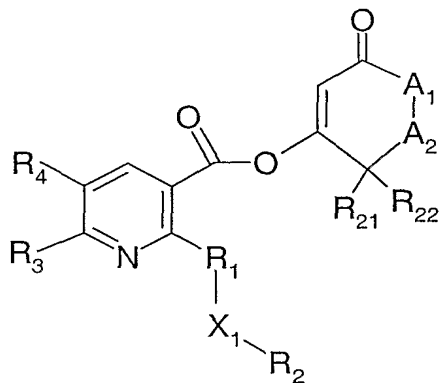
2. A process for preparing compounds of the formula I as claimed in claim 1, which comprises, to prepare compounds of the formula I, in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I and Q is a group  $Q_1$ , either a) reacting a compound of the formula Ia



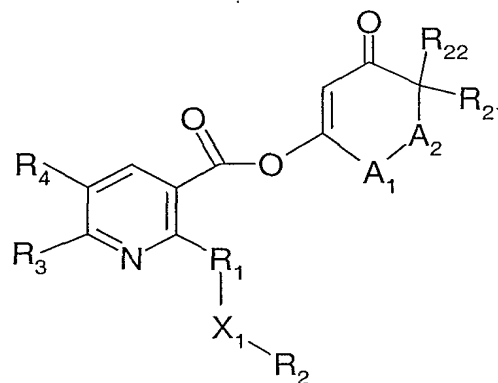
in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I and  $Y_1$  is a leaving group, in an inert organic solvent in the presence of a base with a compound of the formula II



in which  $R_{22}$ ,  $R_{21}$ ,  $A_2$  and  $A_1$  are as defined under formula I, to give the compounds of the formulae IIIa and IIIb

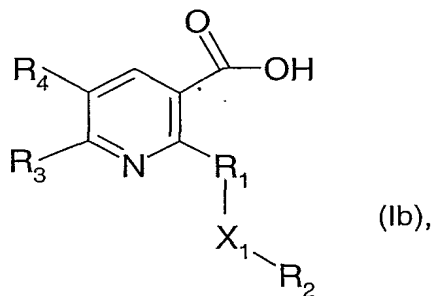


IIIa



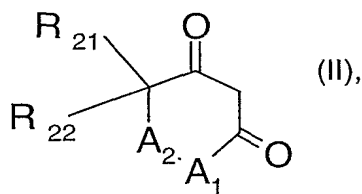
IIIb

and then isomerizing these in the presence of a base and a catalytic amount of dimethylaminopyridine (DMAP) or a source of cyanide, for example acetone cyanohydrin; or  
b) reacting a compound of the formula Ib



(Ib),

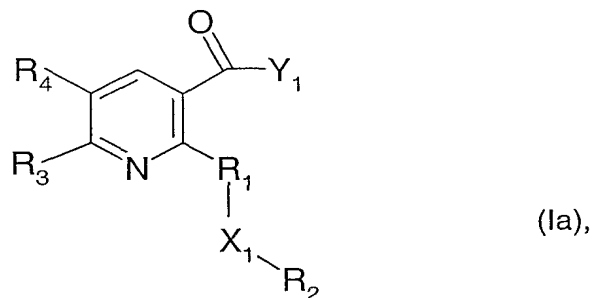
in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I, with a compound of the formula II



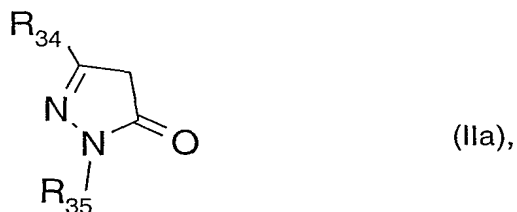
(II),

in which  $R_{22}$ ,  $R_{21}$ ,  $A_1$  and  $A_2$  are as defined under formula I, in an inert organic solvent in the presence of a base and a coupling agent to give the compound of the formula IIIa or IIIb,

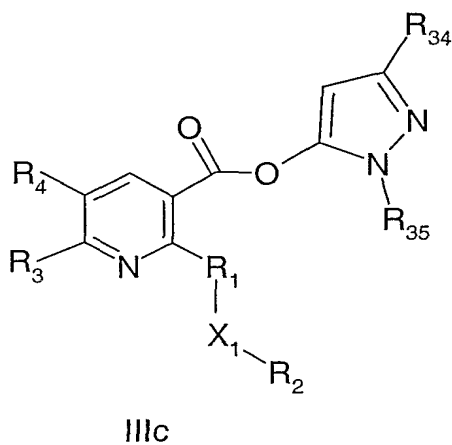
and then isomerizing these as described under route a); or, to prepare the compounds of the formula I, in which Q is a group Q<sub>2</sub>, either a) reacting a compound of the formula Ia



in which R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and X<sub>1</sub> are as defined under formula I and Y<sub>1</sub> is a leaving group, with a compound of the formula IIa

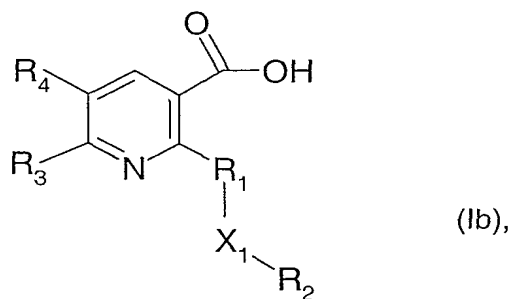


in which R<sub>34</sub> and R<sub>35</sub> are as defined under formula I, in an inert organic solvent in the presence of a base to give the compound of the formula IIIc

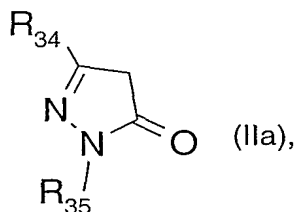


in which R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>34</sub>, R<sub>35</sub> and X<sub>1</sub> are as defined under formula I,  
and then isomerizing this compound in the presence of a base and a catalytic amount of a source of cyanide; or  
b) reacting a compound of the formula Ib

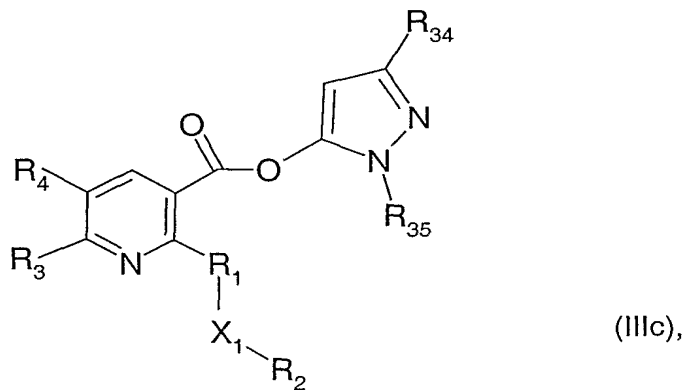
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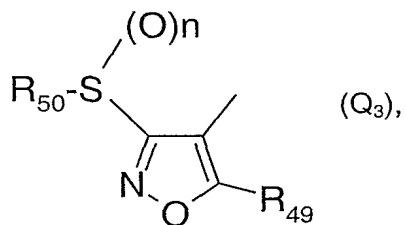
in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $X_1$  are as defined under formula I, with a compound of the formula IIa



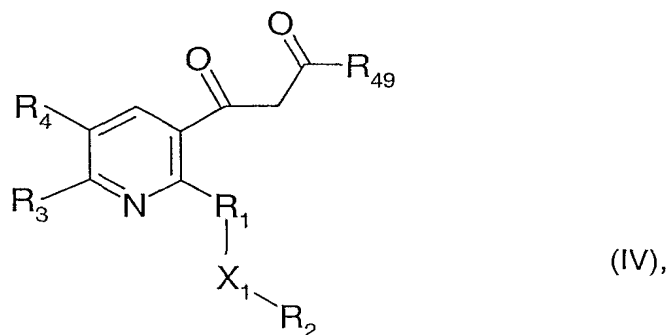
in which  $R_{34}$  and  $R_{35}$  are as defined above, in an inert organic solvent in the presence of a base and a coupling agent to give the compound of the formula IIIc



and then isomerizing this compound as described under route a); or, to prepare compounds of the formula I, in which Q is a group



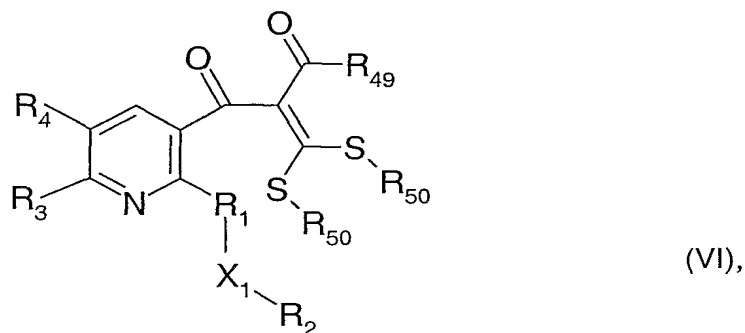
in which  $n$  is 0 and  $R_{50}$  and  $R_{49}$  are as defined above, either a) converting a compound of the formula IV



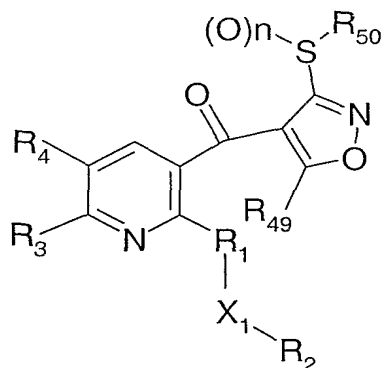
in which  $X_1$ ,  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_{49}$  are as defined above, in the presence of a base, carbon disulfide and an alkylating agent of the formula V



in which  $R_{50}$  is as defined under formula I, and  $Y_2$  is a leaving group, into the compound of the formula VI

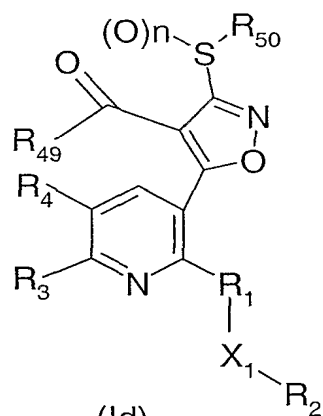


in which  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_{50}$ ,  $X_1$  and  $R_{49}$  are as defined under formula I, and then cyclizing this compound with hydroxylamine hydrochloride in the presence of a base to give the isomeric compounds of the formulae Ic and Id



(Ic)

and



(Id)

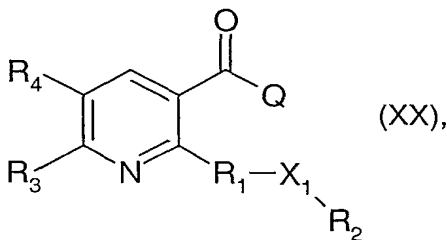
and then oxidizing these compounds with an oxidizing agent, for example with peracids, to give the corresponding sulfoxides ( $n = 1$ ) and sulfones ( $n = 2$ ) of the formulae Ie and If, respectively.

3. A herbicidal and plant-growth-inhibiting composition, which contains a herbicidally effective amount of a compound of the formula I on an inert carrier.

4. A method for controlling undesirable plant growth, wherein a herbicidally effective amount of an active compound of the formula I or a composition which contains this active compound is applied to the plants or their habitat.

5. A method for inhibiting plant growth, wherein a herbicidally effective amount of an active compound of the formula I or a composition which contains this active compound is applied to the plants or their habitat.

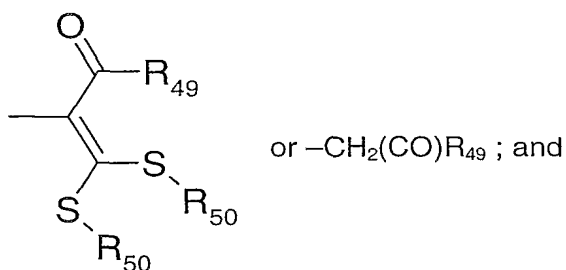
6. A compound of the formula XX



(XX),

in which

Q is hydroxyl, halogen, cyano or C<sub>1</sub>-C<sub>6</sub>alkoxy, or is a group of the formula



$\text{R}_1$ ,  $\text{R}_3$ ,  $\text{R}_4$ ,  $\text{R}_{49}$ ,  $\text{R}_{50}$ ,  $\text{X}_1$  and  $p$  are as defined under formula I and  $\text{R}_2$  is a  $\text{C}_1$ - $\text{C}_8$ alkyl,  $\text{C}_3$ - $\text{C}_6$ alkenyl or  $\text{C}_3$ - $\text{C}_6$ alkynyl group which is mono- or polysubstituted by halogen, hydroxyl, amino, formyl, nitro, cyano, mercapto, carbamoyl,  $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ alkoxycarbonyl,  $\text{C}_2$ - $\text{C}_6$ alkenyl,  $\text{C}_2$ - $\text{C}_6$ haloalkenyl,  $\text{C}_2$ - $\text{C}_6$ alkynyl,  $\text{C}_2$ - $\text{C}_6$ haloalkynyl,  $\text{C}_3$ - $\text{C}_6$ cycloalkyl, by halogen-substituted  $\text{C}_3$ - $\text{C}_6$ cycloalkyl, or by  $\text{C}_3$ - $\text{C}_6$ alkenyloxy,  $\text{C}_3$ - $\text{C}_6$ alkynyloxy,  $\text{C}_1$ - $\text{C}_6$ haloalkoxy,  $\text{C}_3$ - $\text{C}_6$ haloalkenyloxy, cyano- $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ alkoxy- $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ alkoxy- $\text{C}_1$ - $\text{C}_6$ alkoxy- $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ alkylthio- $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ alkylsulfinyl- $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ alkylsulfonyl- $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ alkoxycarbonyl- $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ alkoxycarbonyl,  $\text{C}_1$ - $\text{C}_6$ alkylcarbonyl,  $\text{C}_1$ - $\text{C}_6$ alkylthio,  $\text{C}_1$ - $\text{C}_6$ alkylsulfinyl,  $\text{C}_1$ - $\text{C}_6$ alkylsulfonyl,  $\text{C}_1$ - $\text{C}_6$ haloalkylthio,  $\text{C}_1$ - $\text{C}_6$ haloalkylsulfinyl,  $\text{C}_1$ - $\text{C}_6$ -haloalkylsulfonyl, oxiranyl, which for its part may be substituted by  $\text{C}_1$ - $\text{C}_6$ alkyl, or by (3-oxetanyl)oxy, which for its part may be substituted by  $\text{C}_1$ - $\text{C}_6$ alkyl, or by benzylthio, benzylsulfinyl, benzylsulfonyl,  $\text{C}_1$ - $\text{C}_6$ alkylamino, di( $\text{C}_1$ - $\text{C}_6$ alkyl)amino,  $\text{R}_9\text{S}(\text{O})_2\text{O}$ ,  $\text{R}_{10}\text{N}(\text{R}_{11})\text{SO}_2$ -, thiocyanato, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl; where the phenyl- or benzyl-containing groups for their part may be substituted by one or more  $\text{C}_1$ - $\text{C}_6$ alkyl,  $\text{C}_1$ - $\text{C}_6$ haloalkyl,  $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ haloalkoxy, halogen, cyano, hydroxyl or nitro groups, or

$\text{R}_2$  is phenyl which may be mono- or polysubstituted by  $\text{C}_1$ - $\text{C}_6$ alkyl,  $\text{C}_1$ - $\text{C}_6$ haloalkyl,  $\text{C}_1$ - $\text{C}_6$ alkoxy,  $\text{C}_1$ - $\text{C}_6$ haloalkoxy, halogen, cyano, hydroxyl or nitro; or

$\text{R}_2$  is  $\text{C}_3$ - $\text{C}_6$ cycloalkyl,  $\text{C}_1$ - $\text{C}_6$ alkoxy- or  $\text{C}_1$ - $\text{C}_6$ alkyl-substituted  $\text{C}_3$ - $\text{C}_6$ cycloalkyl, 3-oxetanyl or  $\text{C}_1$ - $\text{C}_6$ alkyl-substituted 3-oxetanyl;

or

if  $\text{X}_1$  is  $-\text{N}(\text{R}_6)-\text{O}-$ ,  $-\text{O}-\text{NR}_{51}$ ,  $\text{SO}_2\text{NR}_7$ - or  $-\text{NR}_{52}\text{SO}_2$ - and  $\text{R}_6$ ,  $\text{R}_7$ ,  $\text{R}_{51}$  and  $\text{R}_{52}$  are as defined under formula I,

$\text{R}_2$  may additionally be hydrogen, unsubstituted  $\text{C}_1$ - $\text{C}_6$ alkyl, or

a five- to ten-membered monocyclic or fused bicyclic ring system which may be aromatic, saturated or partially saturated and may contain 1 to 4 heteroatoms selected from the group consisting of nitrogen, oxygen and sulfur, where the ring system is attached directly or via a

C<sub>1</sub>-C<sub>4</sub>alkylene, C<sub>2</sub>-C<sub>4</sub>alkenyl-C<sub>1</sub>-C<sub>4</sub>alkylene, C<sub>2</sub>-C<sub>4</sub>alkynyl-C<sub>1</sub>-C<sub>4</sub>alkylene, -N(R<sub>12</sub>)-C<sub>1</sub>-C<sub>4</sub>alkylene, -SO-C<sub>1</sub>-C<sub>4</sub>alkylene or -SO<sub>2</sub>-C<sub>1</sub>-C<sub>4</sub>alkylene group to the substituent X<sub>1</sub>, and where each ring system may not contain more than 2 oxygen atoms and not more than two sulfur atoms, and where the ring system for its part may be mono-, di- or trisubstituted by C<sub>1</sub>-C<sub>6</sub>alkyl, C<sub>1</sub>-C<sub>6</sub>haloalkyl, C<sub>2</sub>-C<sub>6</sub>alkenyl, C<sub>2</sub>-C<sub>6</sub>haloalkenyl, C<sub>2</sub>-C<sub>6</sub>alkynyl, C<sub>2</sub>-C<sub>6</sub>haloalkynyl, C<sub>1</sub>-C<sub>6</sub>alkoxy, hydroxyl, C<sub>1</sub>-C<sub>6</sub>haloalkoxy, C<sub>3</sub>-C<sub>6</sub>alkenyloxy, C<sub>3</sub>-C<sub>6</sub>alkynyloxy, mercapto, C<sub>1</sub>-C<sub>6</sub>alkylthio, C<sub>1</sub>-C<sub>6</sub>-haloalkylthio, C<sub>3</sub>-C<sub>6</sub>alkenylthio, C<sub>3</sub>-C<sub>6</sub>haloalkenylthio, C<sub>3</sub>-C<sub>6</sub>alkynylthio, C<sub>2</sub>-C<sub>5</sub>alkoxyalkylthio, C<sub>3</sub>-C<sub>5</sub>acetylalkylthio, C<sub>3</sub>-C<sub>6</sub>alkoxycarbonylalkylthio, C<sub>2</sub>-C<sub>4</sub>cyanoalkylthio, C<sub>1</sub>-C<sub>6</sub>alkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfinyl, C<sub>1</sub>-C<sub>6</sub>alkylsulfonyl, C<sub>1</sub>-C<sub>6</sub>haloalkylsulfonyl, aminosulfonyl, C<sub>1</sub>-C<sub>2</sub>alkylaminosulfonyl, di(C<sub>1</sub>-C<sub>2</sub>alkyl)aminosulfonyl, di(C<sub>1</sub>-C<sub>4</sub>alkyl)amino, halogen, cyano, nitro, phenyl and benzylthio, where phenyl and benzylthio for their part may be substituted on the phenyl ring by C<sub>1</sub>-C<sub>3</sub>alkyl, C<sub>1</sub>-C<sub>3</sub>haloalkyl, C<sub>1</sub>-C<sub>3</sub>alkoxy, C<sub>1</sub>-C<sub>3</sub>haloalkoxy, halogen, cyano or nitro, and where the substituents on the nitrogen in the heterocyclic ring are different from halogen.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/06430

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 C07D401/06 C07D405/06 C07D409/06 C07D413/06 C07D417/06 C07D213/50 A01N43/40		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 C07D A01N		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)  CHEM ABS Data		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	WO 00 39094 A (NOVARTIS A.-G., SWITZ.; NOVARTIS-ERFINDUNGEN VERWALTUNGSGESELLSCHAFT M.) 6 July 2000 (2000-07-06) cited in the application claim 1	1-6
X	WO 00 15615 A (NOVARTIS A.-G., SWITZ.; NOVARTIS-ERFINDUNGEN VERWALTUNGSGESELLSCHAFT M.) 23 March 2000 (2000-03-23) cited in the application claim 1	1-6
A	US 5 260 262 A (LEE, LEN FANG ET AL) 9 November 1993 (1993-11-09) claim 1	1-6
<input type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family		
Date of the actual completion of the international search  23 July 2001		Date of mailing of the international search report  31/07/2001
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  Seelmann, I

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 01/06430

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0039094 A	06-07-2000	AU 2101500 A	31-07-2000
WO 0015615 A	23-03-2000	AU 5862999 A	03-04-2000
		BR 9913745 A	05-06-2001
		EP 1114030 A	11-07-2001
US 5260262 A	09-11-1993	AT 184596 T	15-10-1999
		AU 3221293 A	28-06-1993
		CA 2122262 A	10-06-1993
		DE 69230003 D	21-10-1999
		DE 69230003 T	30-03-2000
		EP 0621863 A	02-11-1994
		ES 2137249 T	16-12-1999
		JP 7502993 T	30-03-1995
		US 5298479 A	29-03-1994
		WO 9311112 A	10-06-1993
		US 5380699 A	10-01-1995